Dryden District Fisheries Management Plan

Background Information and Optional Management Strategies

1987 - 2000

A Summary

Ontario

Ministry of Natural Resources

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Minister

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1.0 INTRODUCTION

1.1 PURPOSE

The purpose of fisheries management planning is to identify how the fisheries resource within the Dryden District will be managed. Both long term management direction to the year 2000 and a 5 year implementation schedule showing short term management actions will be identified. Annual work plans will be developed from the priorities established in the implementation schedule.

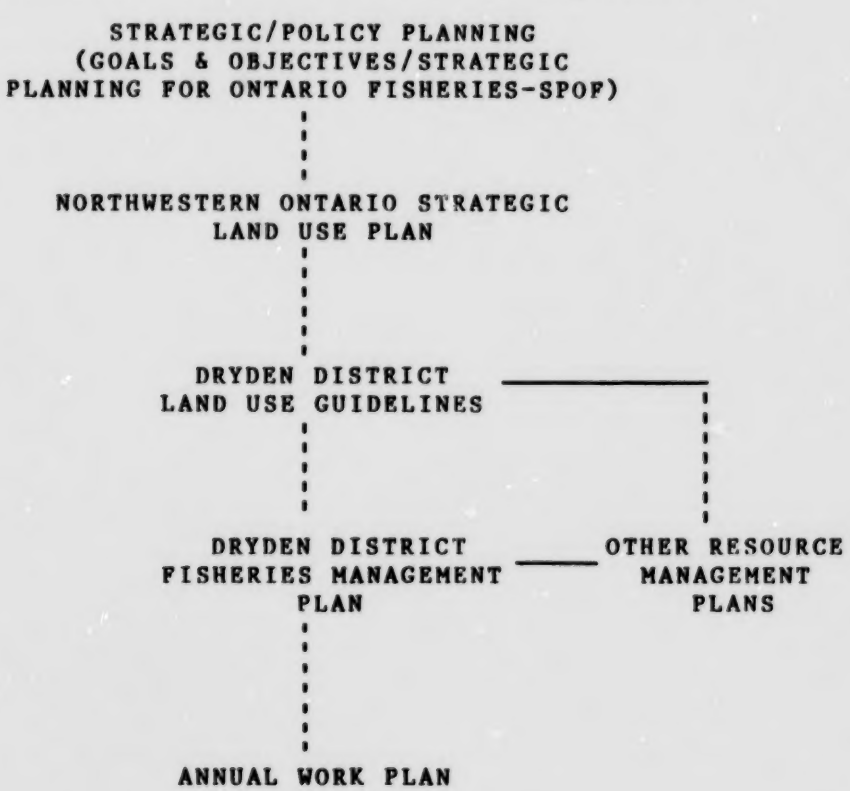
The development of a District Fisheries Management Plan is undertaken within the overall resource planning and management system of the Ontario Ministry of Natural Resources (Figure 1). The Fisheries Management Plan will implement strategic program policy direction from the Dryden District Land Use Guidelines and test it through detailed resource analysis. It will provide the basis for revisions to the strategic program policy where appropriate, and will describe how the strategic program direction from the Dryden District Land Use Guidelines will be carried out.

The purpose of this document is to summarize the resource information contained in the detailed background information document and to introduce optional management strategies and tactics. The public is asked to review this report and provide input on the information contained herein. All comments received will be considered in the evaluation and selection of preferred management actions.

Native fishing agreements are currently being negotiated. Results of these negotiations may influence allocations for all users.

Figure 1

District Fisheries Management Planning and the Ministry of Natural Resources Planning System


STRATEGIC/POLICY PLANNING
(GOALS & OBJECTIVES/STRATEGIC PLANNING FOR ONTARIO FISHERIES-SPOF)
NORTHWESTERN ONTARIO STRATEGIC LAND USE PLAN
DRYDEN DISTRICT LAND USE GUIDELINES
DRYDEN DISTRICT FISHERIES MANAGEMENT PLAN
OTHER RESOURCE MANAGEMENT PLANS
ANNUAL WORK PLAN

1.2 PLANNING PROCESS

The development of a fisheries management plan for the Dryden District will represent the final product of a six step systematic planning approach outlined as follows:

Step 1: Preparation of the Terms of Reference;
Step 2: Identification of Objectives and Targets;
Step 3: Collection and Analysis of Background Information and Identification of Issues and Problems;
Step 4: Identification of Optional Fisheries Management Strategies and Preparation of a Summary Document;
Step 5: Development of a Draft Fisheries Management Plan;
Step 6: Development of a Final Fisheries Management Plan.

Two public consultation phases will occur, one following the completion of Step 4 and the second following the completion of Step 5. This document is Step 4.

1.3 DETAILED BACKGROUND REPORT

A detailed background information document has been prepared which contains information necessary for the development of a fisheries management plan for the Dryden District. Included in the document is information on the fisheries resource, the users and levels of use, and problems and issues in the managing of the District fisheries resources. The size of this document prohibits printing and distribution in large numbers, however, a copy is available for public review at the Dryden District office. The detailed background information document is being continuously updated to include new information.

2.0 BACKGROUND INFORMATION

2.1 THE RESOURCE BASE

2.1.1 PERSPECTIVE

The Dryden District is one of six administrative Districts in the Northwestern Administrative Region of the Ontario Ministry of Natural Resources (Figure 2). The District encompasses a total area of 11,698 square kilometers (1,169,806 hectares) of which (205,366 hectares) is water covered.

The population of the Dryden District within the planning area is 13,104 people, 68% of which are concentrated within the Town of Dryden, the Township of Barclay and the Municipality of Machin. The registered native population in the District is 217 persons.

Eighty-six percent of the land within Dryden District is Crown land. The majority of the patented or private land is in the Townships of Wabigoon, Langton, Mutrie, Temple, Sanford, Aubrey, Rugby, Eton, Britton, Wainwright, Van Horne, Zealand, Southworth, Hartman and Melgund.

All water in the Dryden District occurs in the primary watershed of the Lake Winnipeg Drainage Basin. This primary watershed is divided into two secondary watersheds. The English River and Winnipeg River which are further broken down to tertiary and quaternary (fourth level) watersheds (Figure 3).

To delineate responsibility for fishery planning for those lakes which straddle District boundaries, arbitrary decisions were agreed upon (see Table 1).

The District is glacial in origin being derived by inundation of glacial lake Agassiz ending 9,000 years ago. Four general topographic features are prominent. They are a thin mantel of ground moraine, thick clay plains, three prominent recession moraines and areas of rugged highly dissected, wave washed bare bedrock.

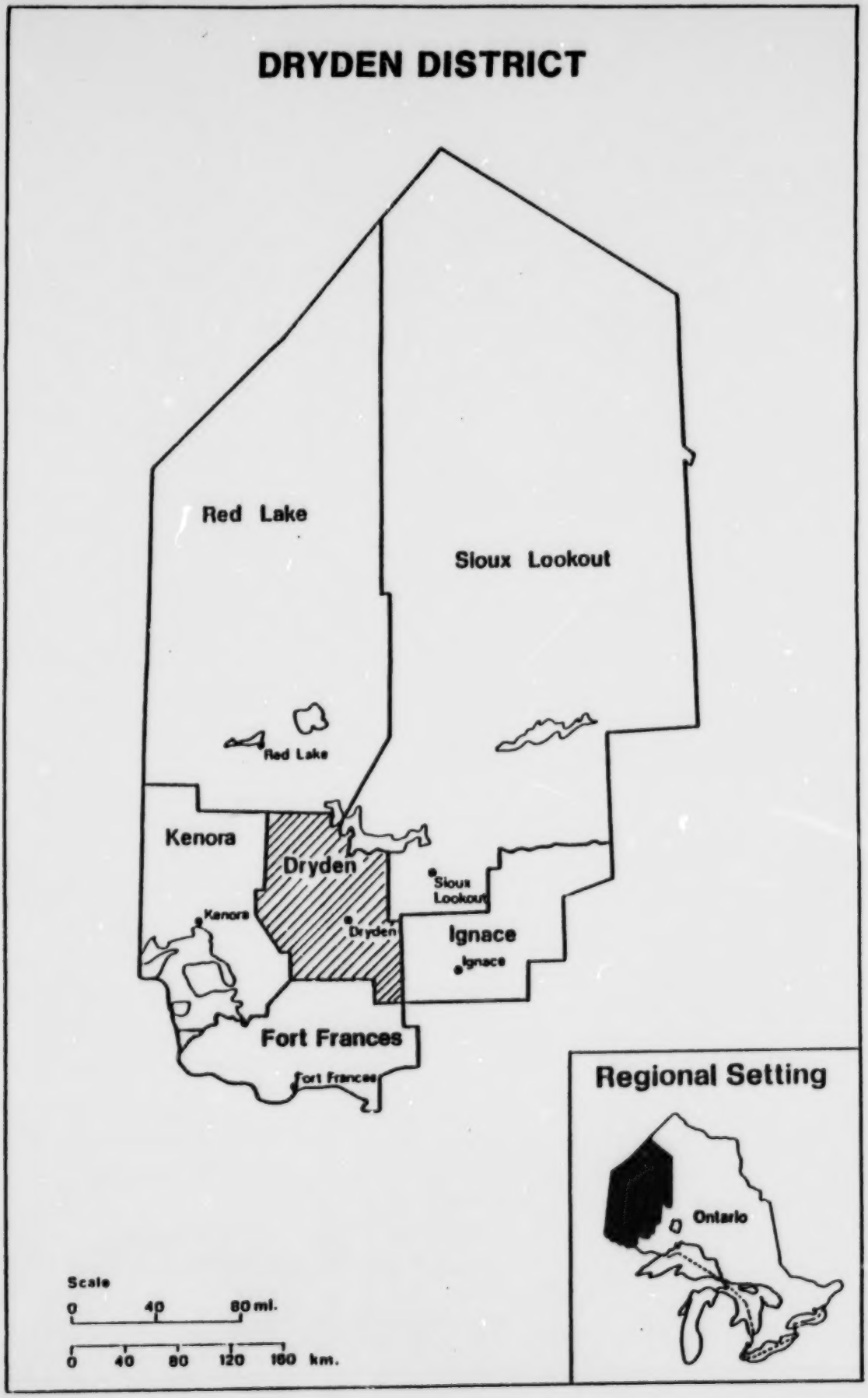

DRYDEN DISTRICT
Red Lake
Sioux Lookout
Red Lake
Kenora
Dryden
Sioux Lookout
Kenora
Dryden
Ignace
Ignace
Fort Frances
Fort Frances
Regional Setting
Ontario
Scale
0 40 80 mi.
0 40 80 120 160 km.

Figure 2

TABLE 1

MANAGEMENT RESPONSIBILITY FOR LAKES STRADDLING
DRYDEN DISTRICT BOUNDARY

DRYDEN	FORT FRANCES	KENORA	IGNACE	RED LAKE	SIOUX LOOKOUT
Stormy	WE44-02	Oak	Islets	NIL	Sandy Beach
Kawashegamuk	WE34-08	VF48-08	Beak		Lynx
Mennin	Meggisi	VF47-01	WE5_-17		Vaughan
Whipper	WE26-06	VF46-06	WE56-30		Bray
WF44-15	Uphill	Big Canyon	WE57-09		
WF59-01	WE06-25	VF47-10			
VF69-02	Lost Axe	VF44-20			
Howard		VF44-24			
VF69-02		VF43-02			
Segise		Shrub			
Canyon		VF33-42			
VF33-46		VE32-52 (Gas)			
VF31-42		Rail			
Fish		Silvery			
VF41-57		VF32-59 (Eddy)			
VF40-13		VF31-43			
Roddy		VF31-54			
VE67-26		VF40-10			
VE67-54		VF40-17			
VF67-56		VF40-48			
Daniels		VF40-50			
Taylor		VF40-51			
Sunshine		VE59-58			
Surprise		VE58-08			
Skinny		VE68-51			
Upper					
Manitou		VE68-67			
Fishhawk		VE67-02			
VE86-16		Rainmaker			
Bait					

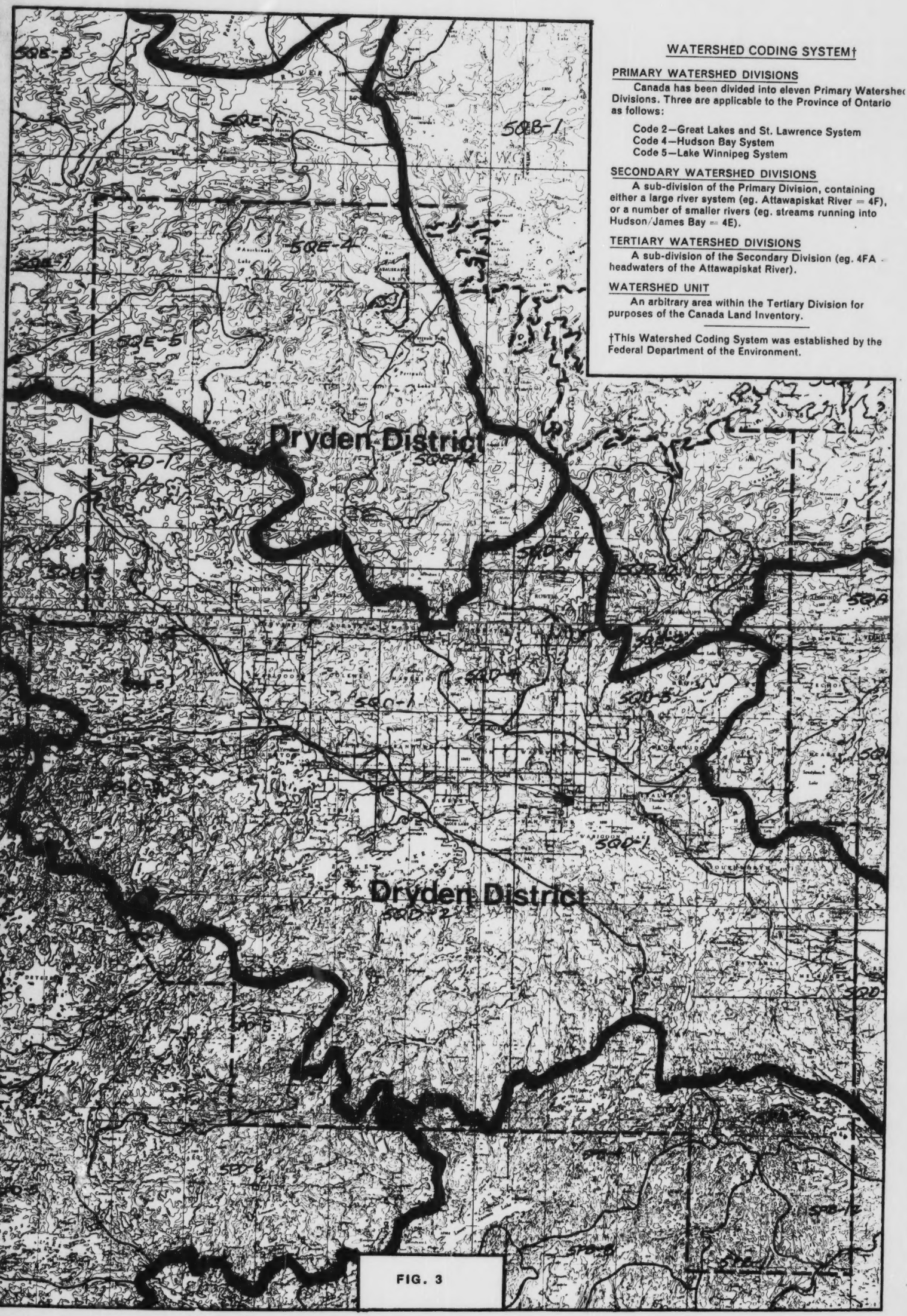


FIG. 3

Dryden District Watershed Units

DISTRICT BOUNDARY -—-—-

Most of the District is characterized by two main soil types; sand and clay. Clay is found primarily through the central portion of the District with the remainder of the District mainly sand interspersed with clay and silt. Deposits of glacial debris dispersed throughout the District has made building aggregates plentiful. Much of the south west border of the District is characterized by bare rock areas with shallow soils and comprising prime lake trout habitat. The District covers two major forest regions; the Boreal Forest Region and the Great Lakes - St. Lawrence Forest Region. The portion of the latter region found in Dryden District is transitional in nature rather than typical.

The climate of the area provides a growing season of 164 days in the north half and 175 days in the south half of the District. All these factors combine to influence the fish resource by effecting such things as productivity and access as a result of logging and mining activities.

Municipal planning documents in use across the District include:
- an official plan and zoning by-law for the Town of Dryden
- an official plan and zoning by-law for the Township of Barclay
- a zoning by-law for the Municipality of Machin.

Features such as Crown land camping corridors, official access points, parks, road corridors, Indian Reserves, FMA's are shown in Appendix II.

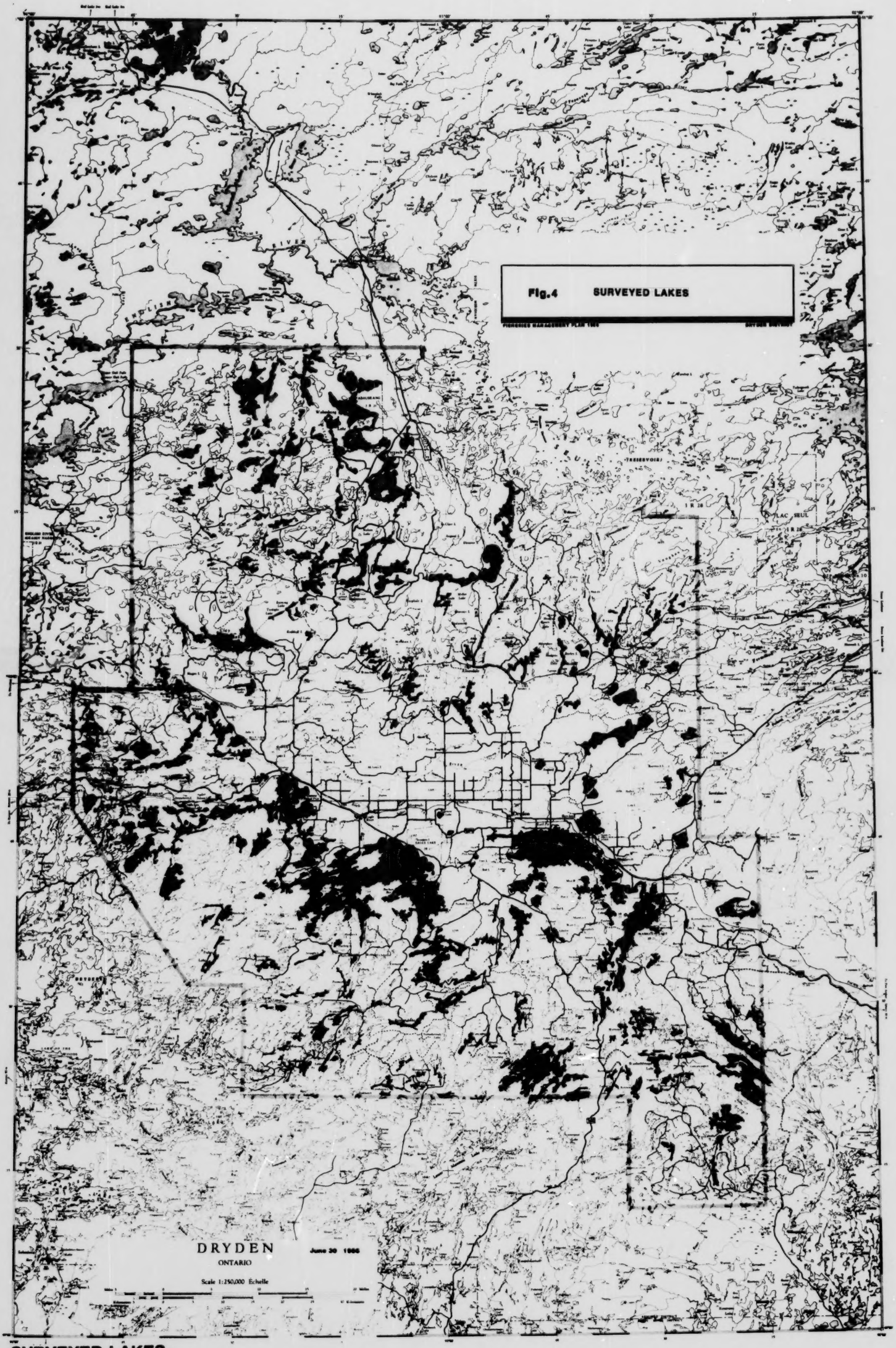
Eagle Lake is dealt with in a way which highlights the significance of the lake and the amount of information available regarding this lake.

2.1.2 THE RESOURCE

Dryden District contains 1,320 lakes greater than 10 hectares with a total surface area of approximately 200,732 hectares. Eagle Lake is the largest lake in the District at 27,691 hectares or 14% of the total lake surface area. There are 122 known cold water lakes which include 5 stocked brook trout and rainbow trout waters and 117 lake trout lakes. The lake trout lakes occur predominantly in a band stretching along the southern border of the District as well as in the Anishinabi Lake area in the northwest corner (Figure 5). Ninety-eight of those have been surveyed (Figure 4). There are 1,198 warm water lakes greater than 10 hectares of which 143 have been surveyed. Approximately 75% of the lake surface area has been surveyed. Warmwater lakes are classified as lakes which include no trout species, but which are dominated by walleye, northern pike, perch, bass etc., or a combination thereof. These lakes are scattered throughout the District. Wabigoon and Eagle Lake are the most significant in terms of size (Figure 5). In addition there are 42 major rivers covering an additional 4,634 hectares thus making total water area of 205,366 hectares. Major rivers are those which show as a double line on a map of 1:50,000 scale. There are no surveys of rivers. Coldwater lakes total 64,466 hectares and warmwater lakes 136,266 hectares.

The major fish species inhabiting lakes and rivers in the District are walleye, northern pike, lake trout, lake whitefish, muskellunge, smallmouth bass, and yellow perch. Sauger are also common in the Eagle Lake and Wabigoon Lake systems. Crappie and sturgeon are not known to occur in the District and largemouth bass are only known to occur rarely in the south part of the District.

The allowable yield for the District by species is: walleye 151,830 kg., northern pike 123,775 kg., lake trout 31,666 kg., brook trout 154 kg., smallmouth bass 59,893 kg., yellow perch 45,555 kg., whitefish 100,785 kg. and muskellunge 12,614 kg. for a total of 526,272 kilograms per year. There is additional



SURVEYED LAKES

Fig.6

KNOWN COLD WATER LAKES

KNOWN WARM WATER LAKES

KNOWN SPAWNING SITES (WALLEYE)

PROVINCIAL FISH SANCTUARIES

DRYDEN

ONTARIO

Scale 1:250,000 Echelle

production available for harvest in some lakes depending on the mix of species. That production is significant (18% or 126,000 kg./yr.) and when combined with the allowable yield by species totals about 697,000 kg./yr. (Table 2).

In addition to the sport and commercial fish species mentioned, other species such as burbot, white sucker and cisco are harvested periodically. No allowable yields are available for those species.

Eagle Lake has a total allowable annual yield of 92,750 kg./yr. made up of walleye 26,300 kg., pike 16,400 kg., lake trout 1,600 kg., smallmouth bass 14,000 kg., yellow perch 10,650 kg., lake whitefish 19,700 kg. and musky 4,100 kg.

Surveyed lakes are shown in Figure 4.

Waters capable of supporting baitfish are scattered throughout the District. No estimate of potential productivity is available but historical data suggests that harvests exceeding 200,000 dozen annually is attainable.

2.2 RESOURCE USE AND PROJECTIONS

In this section the demand in terms of harvest and fishing opportunities for various users of the resource is projected to the year 2000. The purpose is to ascertain whether or not there is sufficient resources to sustain the demand over the planning period.

Key users of the fisheries resources in Dryden District are as follows (arranged in alphabetical order)

TABLE 2

SUMMARY OF FISHERIES POTENTIAL

	AREA HECTARES	ALLOWABLE YIELD (KG/YR)
Surveyed Lakes		
Eagle Lake	27,691	92,750
Other Lakes	114,170	336,282
TOTAL	141,861	429,032
Unsurveyed Lakes	58,871	223,382
Unsurveyed Rivers	4,634	44,952
Total District Waters	**205,366**	**697,366**

SPECIES YIELD	EAGLE LAKE (kg/yr)	SURVEYED LAKES (kg/yr)	UNSURVEYED LAKES (kg/yr)	TOTAL (kg/yr)
Lake Trout	1,600	26,353	3,713	31,666
Brook Trout	0	154	0	154
Lake Whitefish	19,700	48,405	32,680	100,785
Walleye	26,300	68,050	57,480	151,830
Northern Pike	16,400	57,839	49,536	123,775
Muskellunge	4,100	8,514	0	12,614
Smallmouth Bass	14,000	28,594	17,299	59,893
Yellow Perch	10,650	34,905	0	45,555
Subtotal	92,750	272,814	160,708	526,272
Rivers				44,952
*Residual		83,254	42,888	126,142
Total	92,750	356,068	203,596	697,366

*In certain lakes where species diversity is low harvests can often exceed the allowable yield. The harvestable production is referred to as residual and totals approximately 126,000 kg./yr.

i) anglers - resident - residents of Ontario
- non-resident - residents of U.S.A.
- residents of Manitoba

ii) commercial fishermen (bait)

iii) commercial fishermen (food)

iv) native people

v) tourist operators

2.2.1 SPORT FISHING

The major sport species sought by anglers in the District are walleye, northern pike, lake trout and muskellunge. Smallmouth bass appear to be increasing in abundance and importance to anglers. The preferred warmwater and coldwater species are walleye and lake trout respectively. In 1980 anglers spent a total of 303,000 angler days fishing on District waters including 40,300 angler days on Eagle Lake (13% of total). An angler day on Eagle Lake, on average, is approximately 6 hours long.

In 1980, 19% of the anglers in Dryden District were residents of Ontario. Manitoba residents totalled 8% while the balance or 73% of the anglers originated in the U.S.A.

Table 3 lists the current harvest by user group for all fish by species in Eagle Lake and other District lakes. Walleye are the most popular species angled, comprising 54% (59,758 kg.) of the angling harvest by weight in Eagle Lake and 56% (450,528 kg.) by weight of the total angling harvest from other District lakes. Pike comprise 36% (39,658 kg.) by weight of the total harvest from Eagle Lake and 32% (257,284 kg.) by weight from other District lakes and was the second most utilized species.

TABLE 3

CURRENT HARVEST LEVELS BY USER GROUP

LAKE	SPECIES	NATIVE SUBSISTANCE HARVEST (kg/yr)	SPORT HARVEST (kg/yr) RESIDENTS	SPORT HARVEST (kg/yr) NON-RESIDENTS	COMMERCIAL HARVEST (kg/yr)	TOTAL HARVEST (kg/yr)	ALLOWABLE YIELD (kg/yr)
Eagle	Walleye	2970	10871	44743	1174	59758	26300 2.3 times
	Sauger	0	1522	116	0	1638	(incl.with walleye)
	Northern Pike	594	7482	29732	1850	39658	16400 – 2.4 times
	Lake Trout	0	446	2632	115	3193	1600 – 2 times
	Smallmouth Bass	0	91	533	0	624	14000
	Yellow Perch	0	74	433	0	507	10650
	Lake Whitefish	396	43	251	31550	32240	19700
	Muskellunge	0	0	4325	0	4325	4100
	TOTALS	3960	20529	82765	34689	141943	92750
District Lakes	Walleye	1912	111129	337257	230	450528	125530
	Sauger	0	0	0	0	0	(incl.with walleye)
(excluding	Northern Pike	383	19308	236758	835	257284	107375
Eagle Lake)	Lake Trout	0	13234	22448	22	35704	30066
	Brook Trout	0	90	10	0	100	154
	Smallmouth Bass	0	0	31067	0	31067	45893
	Yellow Perch	0	0	19327	0	19327	34905
	Lake Whitefish	255	1407	0	24074	25736	81085
	Muskellunge	0	0	12975	0	12975	8514
	TOTALS	2550	145168	659842	25161	832721	433522
District Lakes	Walleye	4882	122000	382000	1404	510286	151830
	Sauger	0	1522	116	0	1638	(incl.with walleye)
	Northern Pike	977	26790	266490	2685	296942	123775
	Lake Trout	0	13680	25080	137	38897	31666
	Brook	0	90	10	0	100	154
	Smallmouth Bass	0	91	31600	0	31691	59893
	Yellow Perch	0	74	19760	0	19834	45555
	Lake Whitefish	651	1450	251	55624	57976	100785
	Muskellunge	0	0	17300	0	17300	12614
	TOTALS	6510	165697	742607	59850	974664	526272

N.B.: The zero's shown above are often a function of "rounding off" or a very small amount of information not being available.

In calculating projected harvests by anglers in the year 2000, the following assumptions were made:

1) The number of Ontario resident angler-days was not expected to change, assuming current management practices are maintained.
2) The number of angler-days by non-residents of Ontario were expected to increase by 25%.
3) The projected harvest per angler day remained the same as the current harvest per angler day.

Using these assumptions, total annual angler harvest for all game species from lakes other than Eagle Lake is expected to increase to 974,094 kg. from the current 806,885 kg. while total annual angler harvest on Eagle Lake is expected to increase to 130,172 kg. from the current 109,703 kg.

2.2.2 COMMERCIAL FISHING - BAIT

There are currently (1985) 23 fishermen licenced to harvest baitfish in all of the available 49 baitfish harvest blocks in Dryden District. In addition to licenced blocks, licences to harvest concentrations of baitfish (primarily shiners) exist at Kawashegamuk Lake (Long Lake) and Wine Lake. Eight of these fishermen are commercial tourist operators who have a licence to harvest baitfish from specific lakes within blocks in order to supply baitfish to their guests. One landowner has a licence to trap baitfish in public water surrounded by private land (Figure 6).

Species harvested include emerald, spottail and golden shiners; fathead minnows, pearl dace, finescale dace and northern redbelly dace; white sucker and ciscos.

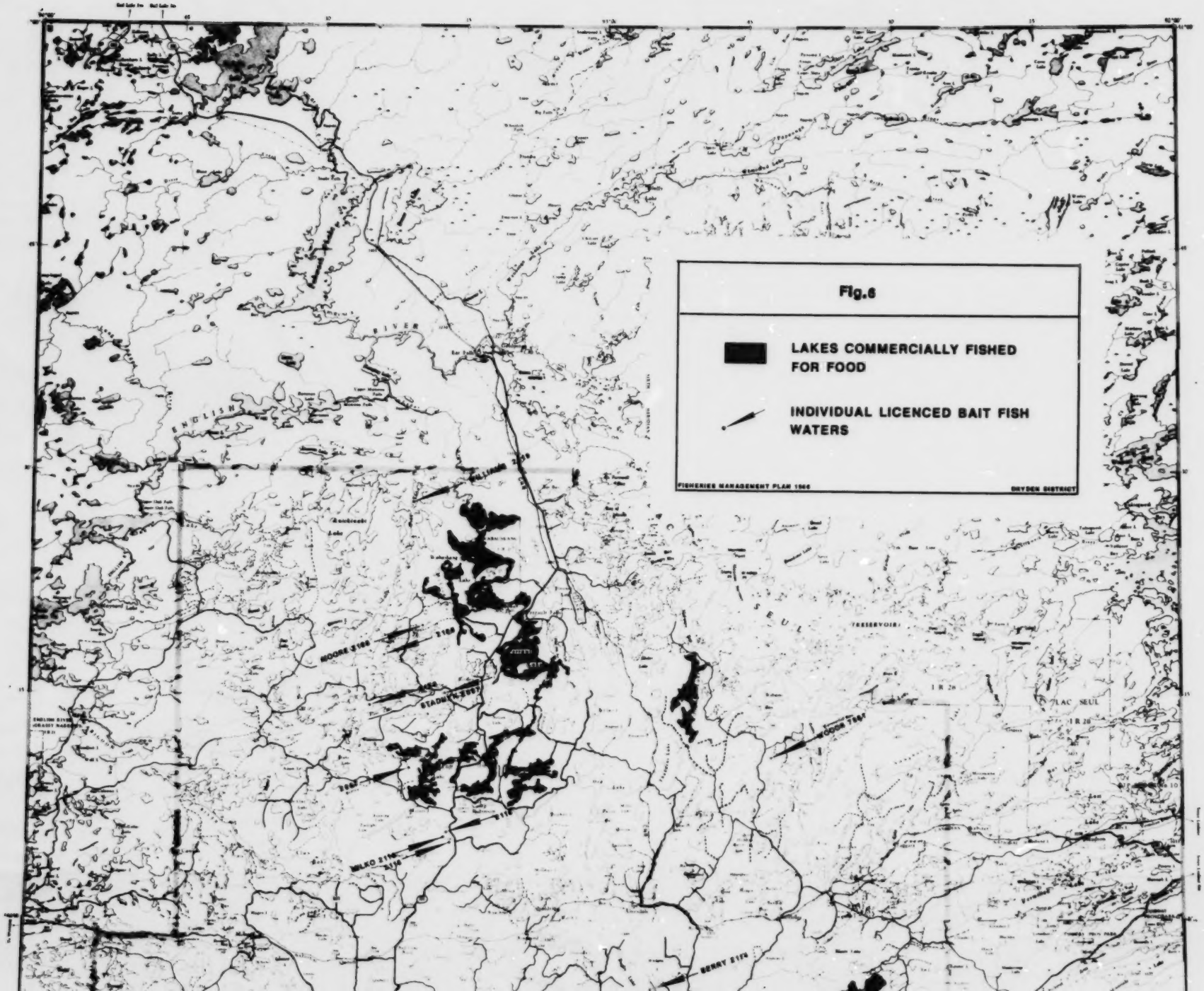
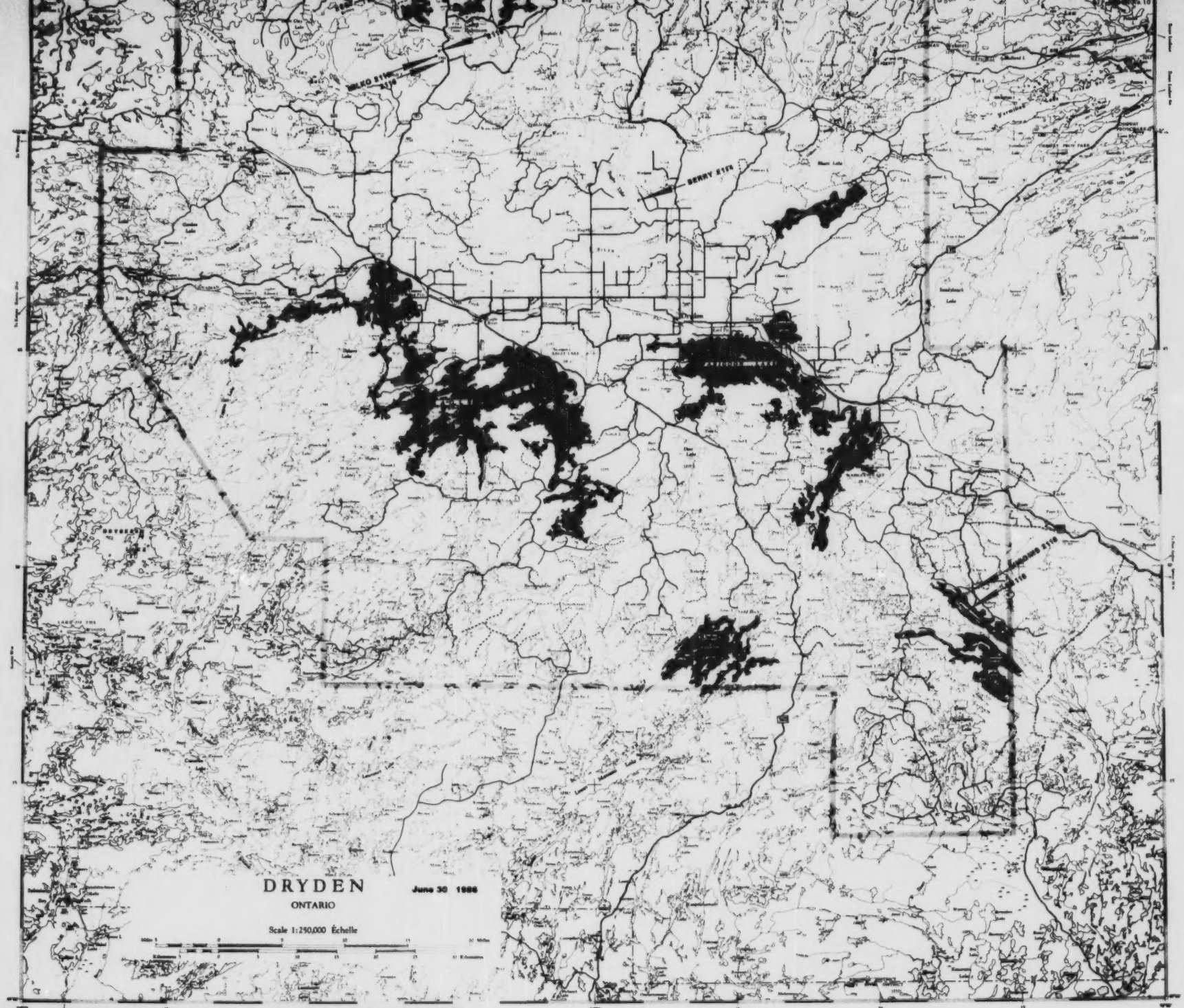


Fig.6
LAKES COMMERCIALLY FISHED FOR FOOD
INDIVIDUAL LICENCED BAIT FISH WATERS
FISHERIES MANAGEMENT PLAN 1986
DRYDEN DISTRICT
ENGLISH RIVER
MOORE 3186
STADUM 3186
MILKO 2176
BERRY 2176
LAC SEUL
I.R. 28



COMMERCIALLY FISHED WATERBODIES

The average annual reported harvest for baitfish for the Dryden District for 1980 through 1985 is 179,730 dozen. This roughly equates to an average of 0.5 dozen baitfish per angler day. Based on this relationship and the projected increase in the number of anglers, the District anticipates an increase of harvest to 183,000 dozen per year.

2.2.3 COMMERCIAL FISHING - (FOOD)

2.2.3.1 DISTRICT LAKES OTHER THAN EAGLE

A total of 14 lakes were licenced for commercial fishing and 1 lake was fished under a permit in 1985. Seven lakes are fished in alternate years. If these lakes were fished in 1984 or 1985 they were listed as 1985 licenced waters.

In 1985, 96% (24,074 kg.) of commercial fish from District waters other then Eagle Lake was made up of whitefish. Pike made up the second highest commercial harvest at 3.3% (835 kg.). Walleye harvest made up less than one percent (230 kg.). Total harvest (all species) was 25,161 kg. (Table 3). Total sport fish harvest was 4% of total commercial harvest. The game fish species quotas are established at a minimum to cover those fish incidentally caught while fishing for the main target species, whitefish. In most cases the District deems it desirable to have a zero quota for game fish, but this is not practical with traditional gear and methods.

The total economic value of the commercial catch for lakes other than Eagle Lake in 1985 was $20,856.

In 1985 all commercially fished lakes had quotas in place. These quotas are not expected to change significantly.

2.2.3.2 EAGLE LAKE

There was one commercial licence on Eagle Lake for the central portion as of December 1985. Another licence for the area fronting the Eagle Lake Indian Reserve #27 was issued periodically from 1959 to 1982 to the Eagle Lake Indian Band. The licence was a fall whitefish licence for a 1,500 kg. whitefish quota but has been inactive since 1982. The current total commercial harvest on Eagle Lake is 34,688 kg. (round weight) which includes 31,550 kg. whitefish, 1,850 kg. northern pike, 1,174 kg. of walleye and 115 kg. lake trout. Market value of the harvest in 1985 was $44,159 including some coarse fish. This is down from the all time high market value of $56,681 in 1980 for 36,759 kg. of fish of basically the same species composition. This decline in market value reflects the depressed market for commercial fish since 1980.

The walleye harvest is 3.4% of the total Eagle Lake commercial harvest not including "coarse fish", and pike represents 5.3% of the total. Lake trout make up 0.3% of the commercial harvest. Sport fish harvested commercially on Eagle Lake in conjunction with the whitefish target species represents 9% of the total commercial harvest.

The projected commercial harvest for Eagle Lake for the year 2000 is 35,000 kg. and is based on 1986 quotas. "Coarse fish" are not included in this estimate.

2.2.4 NATIVE SUBSISTENCE HARVEST

Current and projected harvests were determined by use of an annual fish consumption rate per individual of 30 kgs. (Hough et al 1982). Lake of the Woods used a figure of 35 kgs. per person. Discussion with the Eagle Lake Indian Band Chief suggested 35 kgs. was high for Dryden District.

Harvests from Eagle Lake were assumed to be comprised of 75% walleye, 15% northern pike and 10% whitefish. Harvests from other lakes were assumed to be similar. Native people in the Dryden District are currently estimated to harvest 3,960 kg. from Eagle Lake composed of 2,970 kg. walleye, 594 kg. pike and 396 kg. whitefish. At the same time 2,550 kg. is harvested from the rest of the District, mainly the Wabigoon Lake system composed of 1,912 kg. walleye, 383 kg. pike and 255 kg. whitefish (Table 3).

From 1980 to 1985 the number of natives registered on the three District reserves dropped from 360 to 261. The registered native population is not expected to increase to the year 2000, therefore the subsistence harvests on Eagle Lake and other District lakes is not expected to increase (Table 4).

The following factors may effect the projected fish consumption rates for Dryden District.

1. Native per capita consumption of fish appears to have been steadily declining.
2. Since population projections were made, Federal legislation has effectively increased the number of people who can be classed as native people by a considerable amount.
3. Negotiations between native Indians and the Provincial and Federal Governments are taking place with the aim of establishing a fishing agreement. This agreement may change resource use in the future.

Because of the above, current levels of use were used for estimate projections. At least in the short term, the figures are likely to be accurate. Tables 3 and 4 summarize current and projected harvest by all users. The projected harvest, therefore, is 6,510 kg. from all District waters.

TABLE 4

PROJECTED HARVEST LEVELS BY USER GROUP TO YEAR 2000

LAKE	SPECIES	NATIVE SUBSISTANCE HARVEST (kg/yr)	SPORT HARVEST (kg/yr) RESIDENTS	SPORT HARVEST (kg/yr) NON-RESIDENTS	COMMERCIAL HARVEST (kg/yr)	TOTAL HARVEST (kg/yr)	ALLOWABLE YIELD (kg/yr)
Eagle	Walleye	2970	10871	55929	1000	70770	26300
	Sauger	0	1522	145	0	1667	(incl.with walleye)
	Northern Pike	594	7482	37165	1800	47041	16400
	Lake Trout	0	446	3290	180	3916	1600
	Smallmouth Bass	0	91	666	0	757	14000
	Yellow Perch	0	74	541	0	615	10650
	Lake Whitefish	396	43	314	32000	32753	19700
	Muskellunge	0	0	5406	0	5406	4100
	TOTALS	3960	20529	103456	34980	162925	92750
District Lakes	Walleye	1912	111129	421571	1145	535757	125530
	Sauger	0	0	0	0	0	(incl.with walleye)
(excluding	Northern Pike	383	19308	295948	2055	317694	107375
Eagle Lake)	Lake Trout	0	13234	28060	138	41432	30066
	Brook Trout	0	90	10	0	100	154
	Smallmouth Bass	0	0	38834	0	38834	45893
	Yellow Perch	0	0	24159	0	24159	34905
	Lake Whitefish	255	1407	0	44900	46562	81085
	Muskellunge	0	0	16218	0	16218	8514
	TOTALS	2550	145168	824800	48238	1020756	433522
District Lakes	Walleye	4882	122000	477500	2145	606527	151830
	Sauger	0	1522	145	0	1667	(incl.with walleye)
	Northern Pike	977	26790	333112	3855	364734	123775
	Lake Trout	0	13680	31350	318	45348	31666
	Brook	0	90	10	0	100	154
	Smallmouth Bass	0	91	39500	0	39591	59893
	Yellow Perch	0	74	24700	0	24774	45555
	Lake Whitefish	651	1450	314	76900	79315	100785
	Muskellunge	0	0	21625	0	21625	12614
	TOTALS	6510	165697	928256	83218	1183681	526272

N.B.: The zero's shown above are often a function of "rounding off" or a very small amount of information not being available.

2.2.5 TOURIST OPERATORS

In 1985 there were 109 commercial tourist establishments in the Dryden District. 106 of these were registered with the Ministry of Tourism and Recreation. Three smaller operations did not require registration. Gross revenue for these operators totalled $13,082,000 in 1985. Twenty-nine tourist establishments were concentrated around Eagle Lake and 14 around Wabigoon Lake. Secondary concentrations occur along Highway 105 at Perrault Falls, Cliff Lake, Cedar Lake and Indian Lake Chain. Other main base lodges are scattered through the District. There are 18 outposts in the Dryden District. There were no commercial houseboat operations in 1985. There were 904 commercial boat caches in the District, widely distributed throughout the District except east of Highway 601 and north of Highway 72.

Since 1980 the number of lodges has increased from 95 to 109 or approximately 15%. The number of outposts has remained relatively stable. Increases in client capacity at lodges are known to have occurred in other parts of the District such as along Highway 105. The major fish species sought by anglers staying at tourist facilities are walleye, lake trout, northern pike, muskellunge and smallmouth bass. Bass appear to be gaining in popularity with non-resident anglers in some areas as competition for walleye increases. Given the projected increase in non-resident anglers, who mostly use tourist facilities, some increase in the number of tourist facilities is likely to occur by the year 2000.

2.2.5.1 EAGLE LAKE

In 1985 there were 29 tourist accommodation operations whose guests fished Eagle Lake. Actual number of operations on the lake was 25 but 4 off-lake operations conducted business on Eagle

Lake. These tourist operations also had 7 campgrounds in use. In addition to these operations there is a Provincial Park (Blue Lake) in the vicinity. There are no known commercial houseboat operations on Eagle Lake.

The total number of tourists using accommodations has increased considerably in the last 5 years. A comparison of 27 establishments showed that their total capacity in 1980 was 1,257 guests. In 1985 this had increased to 1,693 guests or an increase of 25%. This increase is mainly the result of government sponsored financial incentive programs for facilities enhancement. For the corresponding period the occupancy rates also increase from 57% to 67%. This increase in occupancy rates is thought to be at least partially related to the Crown Land Camping Program. This program zoned large areas of the District, including Eagle Lake, closed to Crown land camping for non-residents of Canada and instituted a daily user fee for the remainder of the land base.

Given the present history of growth in the accommodation businesses, it is reasonable to assume that some further growth can be expected by the year 2000.

2.2.6 NON-CONSUMPTIVE USERS

The only areas which can be considered viewing areas are road accessible creek spawning sites, some of which are fish sanctuaries. These include Ingall Falls and Godson Lake. The number of people who participate in this activity is small and many are actually dipping suckers where sanctuaries are not in place. Non-consumptive use is not expected to increase by an appreciable amount.

2.3 CURRENT MANAGEMENT PRACTICES

Harvest on all District waters is controlled through open seasons, fish sanctuaries, commercial quotas and angler limits. Special studies are occasionally done on Eagle Lake and inland lakes (eg. creel surveys) and a regular program of lake inventory has been done for many years. Enforcement is used to achieve a satisfactory level of compliance with all fishery related regulations. Habitat management, population management, public relations, education and fisheries input into plans and projects being proposed by other agencies are also done. Stocking of rainbow trout and brook trout has been done on a small scale on a small number of lakes in recent years. This was done to establish a put and delayed take fisheries for these species which do not occur naturally in the District. A significant amount of spawning bed enhancement and creation work (19 projects) has been carried out for walleye as well as transfers of fertilized eggs to re-establish extinct or troubled spawning populations.

2.3.1 ENFORCEMENT

There are three field Conservation Officers in the Dryden District. The Fisheries Management Officer (FMO) and Wildlife Management Officer/Enforcement Co-ordinator (WMO/EC) are also Conservation Officers who spend time on enforcement when required. There are also four Deputy Conservation Officers who assist in the administrative portion of enforcement, in the field in peak periods and to help enforce new regulations arising from new programs such as the Crown Land Camping Program.

2.3.2 HABITAT MANAGEMENT

The Districts current habitat management program includes inventory, protection and rehabilitation.

Inventory of the District waters is conducted by a lake survey crew trained to gather information according to set criteria. Data collected includes fish inventory, water chemistry, water volume, stream flow, shoreline vegetation, slope documentation and littoral zone characteristics. These data are used for fish management planning and to assist in identifying and protecting critical habitat in the event road building, cottage development, timber harvesting, wild rice introductions, etc., is proposed for an area.

Habitat rehabilitation consists mainly of enhancement and improvement of spawning areas.

2.3.2.1 AREAS OF CONCERN

During the process of forest management planning, now called "Integrated Resource Management Planning", fisheries concerns are addressed. "Fisheries Habitat Guidelines" have been developed to guide planners in this process. "Areas of Concern" (AOC's) are designated where there is a potential for impact of forest management on fish habitat (e.g. close to spawning areas, nursery habitat or any place where the threat of erosion into the water is great). The AOC's will be treated differently from other areas in ways ranging from no cutting at all through selective or modified cutting to clear cutting if no damage is foreseen. Similarly, road access and forest tending may be modified.

In general, lake trout lakes (coldwater lakes) are given a greater degree of protection than warmwater lakes because they are more susceptible to disturbance. AOC's often incorporate both fisheries and wildlife concerns as well as other resource user concerns when implemented.

2.3.2.2 SPAWNING AREA REHABILITATION/CREATION

Spawning area rehabilitation/creation efforts have so far been directed toward walleye. Work has been done by both the MNR staff and public volunteer labour under the auspices of the Community Fisheries Involvement Program (CFIP). In general, creek sites and/or wind swept shoals are improved for spawning walleye by the addition of clean rock rubble, the clearing of debris and detritus and the removal of algae growth and/or silt with high pressure water hoses. The new and improved site is usually larger than the original and in some instances could result in a completely new potential spawning area. Enhancement and/or creation of sites with deteriorated spawning populations are sometimes followed with planting of fertilized eggs.

Table 5 summarizes all spawning area work done in Dryden District.

2.4 SUPPLY DEMAND ANALYSIS AND TARGET REFINEMENT

Figure (10) shows the relationship between the current harvest (all users) and the allowable yield (level of sale harvest) of the most significant species for all lakes in the District.

In both Eagle Lake and inland lakes, current and projected harvests (demands) of walleye, northern pike lake trout and muskellunge exceed the allowable yield. Whitefish are harvested at a level above the allowable yield for Eagle Lake but are much below the allowable yield for the inland lakes. This Whitefish surplus occurs mainly in lakes too small for commercial fishing and hence is irrelevant.

Smallmouth bass, yellow perch and sauger in both Eagle Lake and inland lakes are now, and projected to be, below sustained allowable yield harvests.

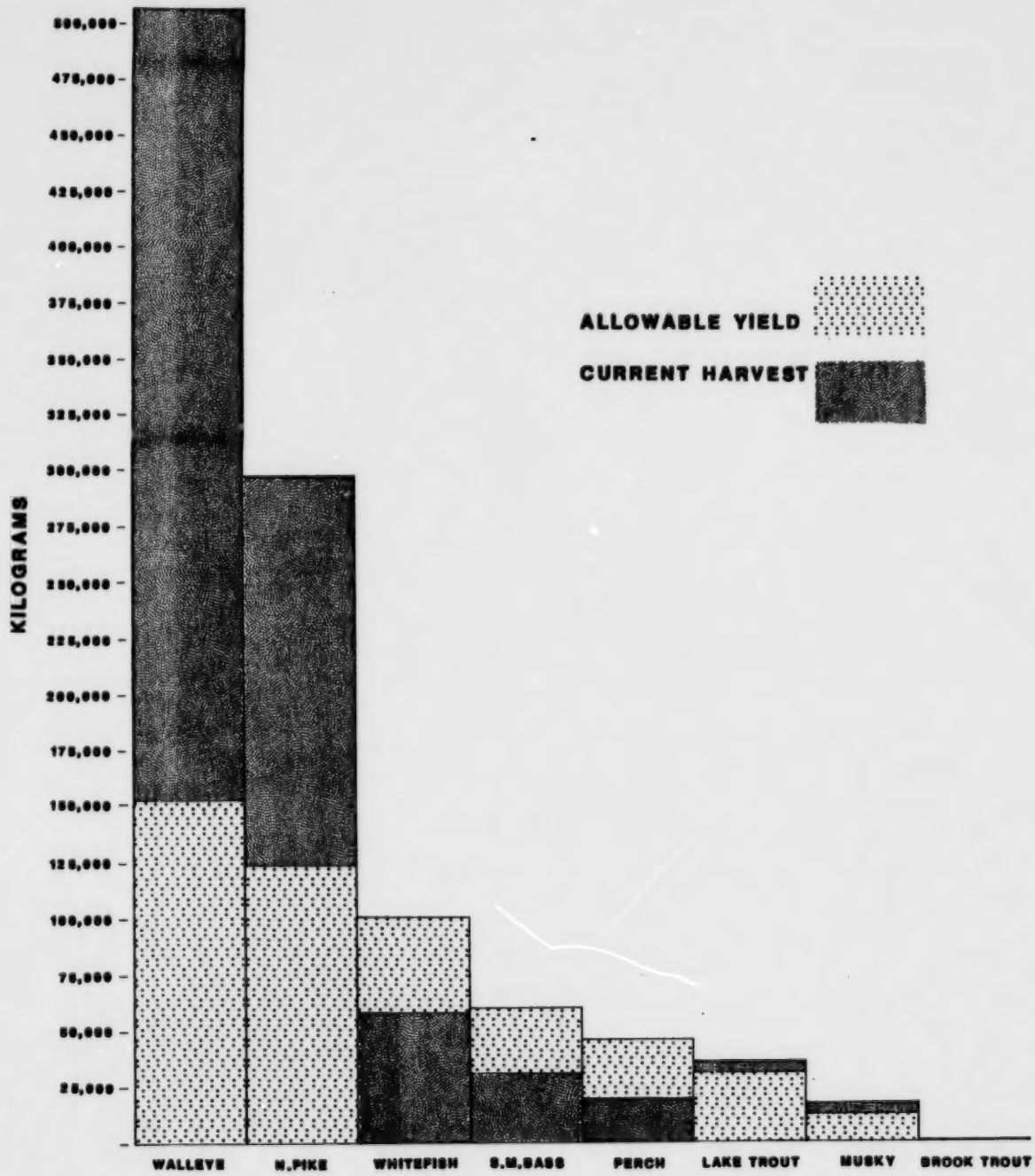
Other fish species (mainly "coarse fish") are probably not being harvested to their potential. In some localized situations and in some years (eg. sucker dip netting both sport and commercial) overharvest may be occurring but this is not a widespread phenomenon. These "coarse fish" include burbot (ling) and cisco.

TABLE 5: WALLEYE ENHANCEMENT PROJECTS

DATE	PROJECT	LOCATION	DESCRIPTION	PROPONENT
May 16, 1979	Walleye Artificial Spawning Project	Gilbert Creek and Kakakwa Creek	Collect, fertilize, deposit 625,000 eggs at Gilbert Creek. 400,000 walleye eggs at Kakakwa Creek	M.N.R.
Oct.-Nov., 1979	Walleye Spawning Bed Improvement Project	Kakakwa Creek	Deposit rubble on existing site	MNR (S.P.O.F.)[5]
April 26, 1980	Walleye Artificial Spawning Project	Gilbert Creek	Collect, fertilize, deposit 1,500,000 walleye eggs	M.N.R.
April 29, 1980	Walleye Artificial Spawning Project	Kakakwa Creek	Collect, fertilize, deposit 1,000,000 walleye eggs	MNR (S.P.O.F.)
Sept-Oct., 1980	Stream Rehabilitation Project	Gilbert Creek	Remove debris, heavy shrubery, deposit rubble to enlarge walleye spawning area	M.N.R.
October, 1980	Walleye Spawning Bed Improvement	Chancellor Falls	Expand, enhance walleye spawning site with rubble	M.N.R.
May 3, 1982	Walleye Artificial Spawning Project	Gilbert Creek	Collect, fertilize, deposit 350,000 walleye eggs	M.N.R.
August, 1983	Stream Improvement Project	Lorna Creek	Remove debris	M.N.R.
May 6,9, 1983	Adult Walleye Transfer	Chancellor Lake	Transfer 40 walleye from Godson and Eagle Lakes	M.N.R.
May 9, 1983	Walleye Artificial Spawning Project	Gilbert Creek	Collect, fertilize, deposit 1,000,000 walleye eggs	M.N.R.
July 1984	Walleye Spawning Bed Improvement	Route River	Removal of debris, partial flow diversion over secondary creek bed	B.C.C.[1] (C.F.I.P.)[6]
July-Aug. 1984	Walleye Spawning Bed Improvement	Chancellor Falls	Expand, enhance walleye spawning bed	B.C.C.[1] (C.F.I.P.)
July-Aug. 1984	Walleye Spawning Bed Improvement	Wawapus Creek	Rearrange existing rubble enhance with 40 yards rubble	B.C.C.[1] (C.F.I.P.)
August 10, 1984	Walleye Spawning Bed Maintenance	Wawapus Creek	Remove beaver dam and debris	M.N.R.
August 1984	Walleye Spawning Bed Improvement	Cedar River	Remove silt and debris enhance with 100 yards rubble	C.L.C.O.[2] (C.F.I.P.)
November 1984	Rehabilitate Stream Crossing	Sup Creek	Install 2-5' culverts, rubble for spawning bed	W.A.[3] (C.F.I.P.)
August 23, 1985	Walleye Spawning Bed Maintenance	Wawapus Creek	Remove debris from old bridge	M.N.R.
September 1986	Walleye Spawning Bed Improvement	Perrault Falls	Enhance and enlarge spawning bed	WCOA[4] (C.F.I.P.)
September 1986	Stream Improvement Project	Perrault Lake	Remove debris and silt from creek from Jackfish Lake	M.N.R.

1 Bryden Conservation Club
2 Cedar Lake Camp Owners
3 Wilderness Air (Robie Robinson)
4 Wabaskang Camp Owners Association
5 Strategic Planning of Ontario Fisheries
6 Community Fisheries Involvement Program

Fig.10 District Allowable Yield By Species



Anglers are generally not adept at catching these species of fish and/or prefer not to catch them. Commercial fishermen harvest substantial amounts periodically, influenced mainly by demand and market value. Few documented cases exist that might indicate overharvests of commercial non-sport species.

2.4.1 SUBSISTENCE FISHERY

In Dryden District, the native people were estimated in 1985 to be consuming 30 kg. of fish per person per year. In terms of sport fish this is equivalent to 1.4% of the allowable sport fish yield. This demand is expected to remain constant until the year 2000.

The Ministry of Natural Resources recognizes the subsistence needs of native people, but will not establish harvest targets which reflect allocations, because of present negotiations. Approximately 60% of the District subsistence harvest will come from Eagle Lake.

2.4.2 ANGLING FISHERY

2.4.2.1 SPORTFISH - INLAND LAKES

There is an indication of overharvest by anglers alone on inland lakes for walleye, pike, lake trout and musky, especially for walleye and pike. The harvest for lake trout and musky is close to the allowable yield but the harvest distribution is uneven with some lakes heavily over exploited and others only lightly harvested.

This harvest information was all generated from data generated in 1980. Since that time harvest patterns may have changed due to the Crown land Camping Program instituted in 1984 as a pilot project. The impact of that program has not been evaluated.

Current and projected harvests for game species by sport fishermen alone exceed the long term capability of the resource and in addition are 2 to 3 times the targeted sportfish harvest established during the District Land Use Planning exercise (Table 6). The DLUG harvest target was based on the District's capability to produce fish and has only changed slightly today because of better estimates of production. It was anticipated that the harvest level would support 222,000 angler days with a satisfaction level of approximately 2.0 kg. per angler day. Presently, however, the harvest of 908,000 kg. of sportfish is supporting 303,000 angler days at a satisfaction level of approximately 3.0 kg./angler day. The resource cannot support this level of harvest. Given that the harvest target should not exceed the 425,000/allowable yield then something needs to change. Either there is a need to lower the number of anglers in general or anglers must lower their harvests. This is especially true for walleye and northern pike where harvest exceeds the allowable yield. This situation is also true for lake trout even though the overharvest is not as large as walleye or northern pike. Lake trout, by virtue of there low productivity are extremely vulnerable to over exploitation.

Final targets, in terms of the number of angler days and the satisfaction level, will have to be balanced during this planning process.

Anglers who are non-residents of Ontario are applying the greatest harvest pressure. This user group presently harvests 83% of all sportfish harvested in inland lakes.

2.4.2.2 SPORTFISH, EAGLE LAKE

Supply and demand analysis has also been conducted for Eagle Lake because of the significance of its fishery relative to the District and further because of the availability of specific

TABLE 6

TARGET REFINEMENT FOR DRYDEN DISTRICT

FISHERY	CURRENT USE		PROJECTED USE		DLUG TARGET		ALLOWABLE YIELD	INTERIM REFINED TARGET	
COMMERCIAL FISHERY	Kg.	Ang/Days	Kg.	Ang/Days	Kg.	Ang/Days	Kg.	Kg.	Ang/Days
Baitfish (Doz.)	179730	N/A	183000	N/A	183000	N/A		183000	N/A
Food Fish (kg.)									
Whitefish	55624	N/A	76900	N/A	76900	N/A	100785	76900	N/A
Lake Trout	137	N/A	318	N/A	318	N/A		318	N/A
Walleye	1404	N/A	2145	N/A	2145	N/A		2145	N/A
Northern Pike	2685	N/A	3855	N/A	3855	N/A		3855	N/A
Subtotal	59850	N/A	83218	N/A	83218	N/A		83218	N/A
Subsistence Fishery (Kg.)									
Whitefish	651	N/A	651	N/A					
Walleye	4882	N/A	4882	N/A					
Pike	977	N/A	977	N/A					
Subtotal	6510	N/A	6510	N/A					
Sport Fishery									
Lake Trout - Resident	13680	5220	13680	5220					
- Non-resident	25080	22050	31350	27720					
Subtotal	38760	27270	45030	32940	11-32000		31666	31666	15833
Other Sport Fish - Resident	152017	52780	152017	52780					
- Non-resident	717527	222950	896906	280280					
Subtotal	869544	275730	1048923	333060	412-433000		393821	393821	196911
All Sport Fishery - Resident	165697	58000	165697	58000					
- Non-resident	742607	245000	928256	308000					
Total - All Sport	908304	303000	1093953	366000	444000	222000	425487	425487	212744

N/A Means "Not Applicable"

TABLE 6

TARGET REFINEMENT FOR DRYDEN DISTRICT

FISHERY	CURRENT USE		PROJECTED USE		DLUG TARGET		ALLOWABLE YIELD	INTERIM REFINED TARGET	
COMMERCIAL FISHERY	Kg.	Ang/Days	Kg.	Ang/Days	Kg.	Ang/Days	Kg.	Kg.	Ang/Days
Total By Species - Walleye	510286		606527				151830	151830	75915
- Sauger	1638		1667				(incl. with walleye)	(incl. with walle.	
- Northern Pike	296942		364734				123775	123775	61888
- Lake Trout	38897		45348		11-32000		31666	31666	15833
- Brook Trout	100		100				154	154	77
- Smallmouth Bass	31691		39591				59893	59893	29946
- Yellow Perch	19834		24774				45555	45555	22778
- Whitefish	57976		79315				100785	100785	
- Muskellunge	17300		21625				12614	12614	6307
Total All Species	974664	303000	1183681	366000	444000	222000	526272	526272	212744

resource user information. From Table 2 and 3 it is apparent that the current and projected sport fish harvest of walleye, northern pike and lake trout is above the allowable yield. The Eagle Lake Atlas, which is available along with this document, identified the need to reduce the sportfish harvest of walleye. At the same time it can be seen that smallmouth bass and yellow perch are being harvested below the allowable yield level. Recent information suggests that musky are also harvested at or below the allowable yield level. It would appear that collectively these species will be able to sustain projected demand to the year 2000.

It is significant that the majority of sportfish (80%) taken on Eagle Lake is by non-residents who are clientele of the well established tourist industry.

The current exploitation level for sport species for Eagle Lake is 2.6 kg./angler day.

The northern pike harvest level (227% of yield) suggests overharvesting of this species but managers feel that due to changes in the fish community structure (eg. reduction in walleye populations) there are more northern pike available to the angler than is indicated in the allowable yield. A recent study (Eagle Lake Fisheries Atlas 1986) did not reveal signs of stress on the pike population. This may not be true over the long term if rehabilitation of the walleye population is successful. The same study indicated that the walleye population showed definite signs of stress. The majority of the sportfish harvested by anglers on Eagle Lake are taken by non-residents (80%). There is a surplus of smallmouth bass and yellow perch.

2.4.3 LAKE TROUT

Currently almost all lake trout are harvested by anglers. Non-residents of Ontario harvest 63% of the lake trout on inland waters and 86% on Eagle Lake. Native subsistence fisheries in the District do not harvest lake trout. The commercial harvest

of trout is negligible on inland lakes and accounts for 4% of the total lake trout harvest on Eagle Lake. The total commercial lake trout quotas in place total 318 kg./yr. for the District while the current commercial harvest totalled 137 kg. (Table 6).

The current and projected angler harvest from inland lakes exceeds the allowable yield by 19% and 37% respectively. On Eagle Lake the current angler harvest of lake trout exceeds the annual allowable yield by 92%. The interim refined target for Eagle Lake is 1,600 kg./yr. The setting of this interim target to align with allowable yield does not necessarily mean that the fishery will be managed for a reduction in fishing opportunities.

During the District Land Use Planning exercise a harvest target for all uses was established at the allowable yield level. The DLUG did not specify the target number of angler opportunities, however, but it did imply that 2.0 kg./day was a reasonable satisfaction level. Since then we have determined that the District satisfaction level is actually 1.8 kg./angler day and about 1.2 kg./angler day on Eagle Lake. In order to arrive at a target for lake trout angler opportunities the District will have to determine what satisfaction level is acceptable, given angler expectations and angler numbers.

2.4.4 COMMERCIAL FISHERY

2.4.4.1 BAITFISH

Baitfish supplies have generally met demands, which from 1980 to 1985 has averaged 180,000 dozen annually. No specific DLUG target was established but DLUG made a commitment to encourage the baitfish industry to meet the demand through natural and artificial culture. The projected demand to the year 2000 of 183,000 dozen/year was developed through a model which related angler days to baitfish harvest. With the exception of mid-summer shortages arising from difficulty in trapping baitfish with the type of gear in use, current and past harvest levels suggest that the industry is capable of meeting the demands. The interim target for the year 2000 has been set at 183,000 dozen.

2.4.4.2 FOOD FISH

The major food fish species harvested in Dryden District is whitefish, for which there are now no other significant users. Quota levels on inland lakes are below the allowable yield and there appears to be no difficulty on supplying the quota. For game species, however, (walleye, pike, lake trout) there is a significant demand by other use groups over and above the allowable yield level.

Despite the fact that quotas for these species on inland lakes are small, consideration will be given to all users of the fishery when establishing the planning targets to the year 2000

On Eagle Lake, whitefish are also the principle target species. Quotas for whitefish are currently about 1.7 times the allowable yield and, although there is concern, the fishery seems to be able to sustain this level of harvest. Again, quotas for game fish species (the same as inland lakes) are small and constitute about 4% of the allowable yield. Consideration will still be given to all users when establishing the planning targets.

The DLUG target for commercial fish assigned to Dryden District was "to maintain commercial fish harvest in the District at the level of existing quotas or where quotas are not in place, at the average level of harvest which is 138,000 kg. per year" (includes suckers). Quotas are in place on all Dryden commercially fished lakes and currently are: whitefish 76,900 kg., walleye 2,145 kg., northern pike 3,855 kg. and lake trout 318 kg. for a total of 83,218 kg./yr. for all District waters.

The interim refined target for commercial food fish to the year 2000 has been set at current quota levels which total 83,218 kg./yr. (Table 6) and this may be modified depending on considerations of quotas for the game fish species. In addition, coarse fish have not in the past been included in targets or quotas and although there is an ample supply of coarse fish (suckers, ling, bullheads) demand has been low recently due to depressed markets. Commercial fishermen are asked to comment on this aspect during the fisheries management planning process.

2.5 PROBLEMS AND ISSUES

For all species of fish, there are, in essence, only two main problems/issues.

The first is the numbers of fish that can be safely harvested from any and all waterbodies on a continuous basis is limited and demand for these available fish often exceeds the supply. The second fundamental problem is the loss or degradation of fish habitat resulting in lower real and potential fish yields. All other problems and issues are directly or indirectly related to the above two items.

A third issue, not directly related to the fish resource per se but closely affiliated with the fishing experience, is the question of aesthetics. The perception of an individual of the beauty of a particular setting has been repeatedly identified as an important element of the fishing experience. Qualities such as remoteness, natural settings, and an abundance of visible wildlife are some factors which people who seek an 'aesthetically pleasing experience' in the Dryden District have mentioned.

There is another series of problems which indirectly affect how fisheries resources are managed. These include deficiencies in fisheries information and technology, communications among resource users and communications between fisheries managers and user groups.

The following pages itemize and attempt to delineate the specific identifiable problems and issues facing the fisheries resources and its management. Table 7 summarizes the problems and issues discussed below.

2.5.1 COMMERCIAL FISH

2.5.1.1 BAITFISH

Generally, the industry provides a good service to the users of the resource and the block system appears to be a favoured and

efficient manner of allocating the resource. However, some problems do exist. For example, there are sometimes shortages in mid to late summer arising from difficulties in catching baitfish with the gear presently available. In addition, productivity of some waters may be decreased because of winter kill, summer kill, spoilage in traps and introduction of unwanted species (eg. yellow perch). Another problem, as perceived by the Bait Fishermen's Association, is with regards to the angler's bait fish licence, which allows anglers to take bait fish for personal use and is believed by the bait fishermen to result in some waters being overharvested. A third problem is the lack of knowledge available about baitfish production sustainable harvests and the factors influencing them (e.g. habitat characteristics). Accurate assessment of past harvests, usually a good management tool, has not been possible because accuracy of baitfish returns have been poor. Fourthly, fisheries managers often do not know which lakes are baitfish lakes. This can create problems for the industry when forest access roads, timber harvesting, introduction of wild rice, or development of an area is proposed.

There is a demand for baitfish licences beyond what the existing baitfish block licencing system can supply. There may be additional room for more licencing but we do not know enough about individual block usage.

2.5.1.2 COMMERCIAL FOOD FISH

(i) Inland Lakes

The main issue regarding commercial fishing on inland lakes is underutilization of the resource, that is, failure to harvest assigned quotas of the target species, whitefish. This lack of utilization is attributed mainly to depressed fish markets in recent years and relatively inactive licences. The second issue is the competition among user groups for the limited sport fish (walleye, northern pike and lake trout) in commercially fished

lakes. This issue is considered minor on inland lakes currently licenced because quotas for sportfish have been reduced to minimum levels which still allow for the harvest of the target species. Most unlicenced District lakes which have whitefish, and are big enough to be commercially fished for whitefish, have had experimental commercial permits or licences issued in the past. They were discontinued for reasons of conflict with sport species, inability to support a viable whitefish fishery at that time, access problems economic reasons, etc.

Pollution has eliminated some potential commercial fish harvests. Mercury contamination continues to be a problem on Clay Lake which has not been licenced since 1971. Clay Lake has an allowable whitefish annual yield of 2,586 kg.

Knowledge of commercially fished stocks is poor. Little monitoring of biological parameters of commercially caught fish on inland lakes has been done. This lack of knowledge hinders quota management in cases where there is a demand for higher quota and the ability of fisheries managers to identify the optimum harvest level which, in some lakes, may be higher than the allowable yield.

Coarse fish such as suckers, bullheads and burbot could be made available to the commercial fishery but are presently underutilized. Harvest of these species from lakes where top order predators are being harvested by other users may help to maintain community balance. Traditional capture methods and poor markets contribute to the underutilization of coarse fish.

There are a number of small lakes with stable whitefish populations but quotas would be small and, in the opinion of several commercial fisherman, economically unviable.

(ii) Eagle Lake

Eagle Lake whitefish quotas exceed the allowable yield for this species. This harvest level has been maintained from the same licenced area of the lake, the central portion, for 12+ years.

The fishery appears to be coping with this harvest level with the only evident possible signs of stress being a low mean age of the harvest population. For this reason the fishery is being watched closely for any additional signs of stress and monitoring of the fishery will be increased (Table 3).

Competition for the gamefish resource on Eagle Lake is intense especially for walleye. The incidental current sport fish harvest associated with this whitefish licence amounts to 4.3% of the current Eagle Lake sportfish harvest. Combined sportfish harvest makes up 9% of the total commercial fish harvest on Eagle Lake. There is little potential to reduce the harvest of sport fish significantly using the present gill net harvest method.

2.5.1.3 SUBSISTENCE FISHERIES

There is a lack of communication with Indians concerning exactly where they fish and what quantities of fish they harvest. Presently the District feels that most of the subsistence harvest comes from the Wabigoon and Eagle Lake systems.

Indians do not agree with many present management practices or allocation policies of the MNR. These differences of opinion stem largely from unresolved questions dealing with aboriginal rights and Indian treaty interpretation.

2.5.2 SPORTFISHING

2.5.2.1 GENERAL

Sportfishing on Eagle Lake and other District lakes (for species other than lake trout and muskellunge which are dealt with separately) involves the angling harvest of walleye, northern pike, smallmouth bass, yellow perch and to a very small extent, stocked brook trout.

Lack of specific information on where overharvest of walleye and pike is occurring prevents precise management of these resources.

Angling harvest information gathered in 1980 during the Provincial Angler Survey does not provide details on where overharvests of walleye and northern pike are occurring. The survey was a general information gathering exercise covering all District waters. In 1984 the Crown land Camping Program was initiated as a pilot project. It is considered to have had an influence on the harvest of walleye and pike and its distribution but the effects have not been quantified.

Non-residents of Ontario exert approximately 81% of the angling pressure and, together with resident anglers, subsistence fishermen and commercial fishermen, are harvesting walleye and northern pike in excess of the allowable yield. This large number of non-resident anglers has great economic importance to Dryden District. The total direct revenue from 109 District tourist establishments was 13,082,000 in 1985, most of which came from non-resident anglers. This figure does not include the expenditure of sport fishing visitors at other area businesses such as tackle and gift shops, gas stations, grocery and liquor stores, restaurants, etc.

By far the greatest amount of fishing pressure, and hence harvest, is attributed to the sports angler. To a great extent, management of the fishery is management of the sports angler.

2.5.2.2 EAGLE LAKE

The District has good sportfishing information for Eagle Lake (see Eagle Lake Fisheries Atlas 1986).

On Eagle Lake the greatest single fisheries problem is that the current and projected demand for walleye (by all user groups)

exceeds the supply. Competition for walleye, especially among tourist establishments, has become so intense recently as to threaten the long term viability of the walleye stocks. Tourist industry facilities on the lake have been escalating rapidly in the last 5 to 6 years both in capacity rating and occupancy percentage. This increase is attributed mainly to a monetary incentive program for tourist facility expansion in the District, initiated by the Ministry of Tourism and Recreation. Other factors contributing to this increase are thought to be the currency exchange rate and Highway 502 which provides a closer, more direct route with the U.S.A. and the Crown Land Camping Program which closes areas (eg. Eagle Lake) to camping by non-residents thus forcing use of tourist facilities.

Northern pike harvests are much above the allowable yield but a recent study (Eagle Lake Fisheries Atlas 1986) did not reveal signs of stress on the pike population. Managers feel that due to changes in the fish community structure (eg. reduction in walleye populations), that there are more pike available to the angler than is indicated by the allowable yield. This may not be true over the long term if rehabilitation of the walleye population is successful. 80% of the angler harvest is attributed to non-residents.

There is some concern among users of the resource that night angling in the vicinity of Viking Reef is resulting in the harvest of an abnormally high number of large prime female walleye spawning stock.

Sports fishermen are prejudiced against certain other game species (i.e. smallmouth bass, yellow perch and sauger).

Smallmouth bass and yellow perch are being underutilized on Eagle Lake, and District projections indicate this situation will continue. The main reason these are not kept is thought to be the occurrence of yellow grubs in these species. These are not a health hazard but they are aesthetically unappealing. The

occurrence of this parasite is usually higher in an unexploited fish population. A program to increase the harvest of these species by anglers could improve the quality and angler acceptance.

Much of the sauger underharvest can be attributed to their inclusion with walleye in the daily catch and possession limits. Since they are generally smaller than walleye, anglers tend to selectively keep walleye and release sauger. Present regulations in Ontario do not recognize the difference between sauger and walleye. Most of the sauger harvested are thought to be taken by the resident winter fishery in the Bear Narrows area in the southern part of the lake when the ratio of saugers to walleye can run 50/50.

The quality of harvested walleye on Eagle Lake is changing. The size of walleye has decreased significantly (Eagle Lake Fisheries Atlas 1986) as a result of fishing pressure. Presently there are no management actions in place to change this condition.

Degradation of critical walleye spawning habitat in the central and western parts of Eagle Lake, in conjunction with heavy angling pressure will threaten long term angling opportunities and harvest of walleye. The effectiveness of sanctuaries to protect walleyes during the spawning period needs to be evaluated. There is some indication that sanctuaries could be more effective if they were in place over a wide area and perhaps a longer period of time.

2.5.2.3 INLAND LAKES

Many of the problems and issues related to sportfishing on inland lakes are similar to those on Eagle Lake. There are, however, differences. Many of the problems may be more perceived than real, but are difficult to evaluate without more specific data. However, the District puts them forward in order to generate discussion about the sorts of things we should be looking at over this planning period.

On inland lakes the current and projected harvests of walleye and pike exceed the allowable yield according to the District wide 1980 angler survey. However, in the Districts opinion, harvest levels vary considerably with some lakes being overharvested while others receive little angling pressure. Road accessible lakes and lakes with heavy tourism use are likely candidates for overexploitation.

Smallmouth bass and yellow perch are still being underharvested on inland lakes. This is especially true for smallmouth bass on Wabaskang, Perrault, Cliff, Cedar and Upper Manitou Lakes.

Traditionally, M.N.R. has not promoted trophy fisheries through the use of regulations and, by virtue of the existing regulations, are promoting quantity fisheries. There has been increasing interest in the catch and release principle lately, especially on remote fly-in lakes, by tourist operators and local commercial air carriers. Anglers wishing a quality fishing experience, particularly the opportunity to catch many fish, not necessarily trophies, are going more and more for catch and release with perhaps the opportunity for a "shore lunch" or to take one fish home. With expanding road access the opportunity for this type of experience is diminishing. Presently some catch and release fisheries are occurring in remote fly-in lakes often associated with boat caches on smaller lakes in the south end and northwest corner of the District.

Conflicts between commercial fishermen and anglers are rare and usually unwarranted in Dryden District inland lakes. The conflicts that do occur are the result of lack of information and communication between the two groups. The angler needs to know about the target species (whitefish) and the very small relative sportfish quotas in place for commercial fishermen.

The question of habitat loss is of vital concern to all fisheries in inland lakes. All resource users (and not just the fisheries resource users) must be aware of the moral and legal responsibilities in the protection of fish habitat. Construction

of docks and destruction of weedy nursery fish habitat by the creation of sand beaches is a major concern in cottage subdivisions.

Of additional concern to fisheries managers are shoreline activities associated with timber operations and road alignments and the installation of stream and river crossings.

Preventing habitat loss or degradation associated with human activity in and around lakes i.e. timber operations, shoreline development (docks, boathouses, beach creation, etc.) and other resource extraction activities are a major part of resource management. Habitat protection is more effectively handled today under a variety of planning and plan review programs, i.e. Timber Management Planning; Planning Act reviews by subdivisions, etc. There are still some localized habitat problem areas including the degradation of critical spawning habitat through shore development of patented land (i.e. Eagle, Wabigoon, Dinorwic and Thunder Lakes).

Other natural phenomena may do harm to spawning areas. Of particular concern are the damming of creeks by beavers. Management for fisheries and beavers are thus continually at loggerheads with one another.

The demand for, and feasibility of stocking non-native salmonids is largely unknown. If a demand exists, it is mostly by residents to supply a different angling experience. Some inland waters are capable of supporting salmonids on a put and take basis (population not maintained by natural reproduction) such as speckled trout, rainbow trout, but serious questions remain as to the cost/effectiveness of this management technique. Recently, rainbow trout stocking was discontinued due to the high cost relative to benefits.

Expanding road access into remote areas with tourist operations is still an issue with the tourist industry despite road planning controls in the timber management planning process. Presently there are only a few areas left in the District where there is no

road access, e.g. Hawkcliff Lake area, the Manitou area, and the Anishinabi Lake area. Additionally, there are other lakes used by the tourist industry that do not have public direct access to them.

2.5.3 LAKE TROUT

Dryden District anglers have identified lake trout as a highly prized fish species. This is because of several factors listed randomly below:

1. Lake trout are a good eating fish.
2. They are a good fighting fish.
3. They bite readily during winter and spring when other fish are not available.
4. They can grow to trophy size.
5. They are usually associated with pristine waters which are aesthetically pleasing.

Because lake trout are so highly prized in Dryden District, angler demand is also high. Summer anglers are mainly non-residents while winter anglers are mainly residents. Harvests have reached or surpassed the allowable annual yield in many lakes and in the District as a whole. A band across the southern edge of the District contains most of the lake trout lakes of Dryden District and most of the heavily exploited lakes also. Virtually all lake trout lakes are, or have the potential to be, over fished.

The history of lake trout exploitation in the District has paralleled the history of access development with many District lakes such as Winnange, Manomin, Gordon, Wapageisi, Stormy, etc. going through periods of high exploitation coinciding with the advent of road access. Prior to the 1970's most lake trout lakes were accessible only by aircraft or water. Tourist camps and outposts were the main source of non-resident exploitation. From the late 60's until the present, exploitation has continued to increase with the expanding network of roads. The popularity of snowmobiles and all-terrain vehicles has been responsible for much of this increase. Most lake trout lakes are thought to be

used by anglers with the use ranging from light to very heavy, with the majority of the harvest (65%) being attributed to non-residents (Table 3). Lake trout angling pressure is more evenly distributed now than it was 20 years ago due to increased road access. Lake trout populations are extremely sensitive to exploitation due to their unique biological characteristics and the limnological characteristics of the lakes in which they exist.

District lake trout lakes up until now have operated on the "pulse" fishery principle. With this principle anglers congregate on newly accessed lakes where the fish are biting and continue to fish there until fish become scarce or until a new "hotspot" is found. With this method, fish populations are sometimes fished down to the level where the surviving spawning population is inadequate to maintain the annual allowable yield and recovery of the population is slow. Anglers give the lake a "rest" until news that the fish are biting again reactivates the cycle.

To some extent such a fishery is compatible with fisheries management goals provided the lake is not fished down much below the level where it can still reproduce at the optimum allowable level. In general, though, the numbers and size of lake trout appear to have been declining across the District, indicating that harvest pressures are too high. Lakes like Winnange, Manomin, Gullwing, Stormy, Wine and Eagle are examples of this. Other lakes which are being threatened but which are still producing some nice fish are Anishinabi, Wapageisi and Upper Manitou. Since it is difficult, if not impossible, to prevent access to many lake trout lakes and because the prevention of access on some lakes will increase pressure on others, any management strategies dealing with lake trout must address the control of overharvest not access. On small and medium sized lakes it is quite possible to remove the theoretical five year allowable yield of lake trout in less than one year.

Angler harvest rates are below target levels of satisfaction. Currently, anglers are harvesting lake trout at rates of 1.2-1.8 kg./angler day, somewhat less than the DLUG target. Because of

the present overharvest situation, these catch rates are likely to decline as more and more waterbodies become 'fished down' and are not given a chance to fully recover between bouts of heavy fishing pressure.

The demand for trophy sized lake trout is unknown, but if this demand by anglers exists, the number of opportunities is scarce and becoming more so. Large lake trout (trophies) of 9 kg. (20 lb.) or more are, with rare exceptions, old fish (usually at least 20 years old, sometimes much older). Only some large lakes can produce relatively large numbers of trophy fish, but at catch rates well below allowable yields. Such lakes could be Upper Manitou, Gullwing, Anishinabi, Stormy, Kawashegamak, perhaps Eagle Lake and a few others.

Lake trout lakes are fragile and generally unproductive and can't support both intense development and a good fishery. Development for cottages, resorts, etc. place added environmental and angling stress on a fishery with very little natural resilience to such pressures. Development also threatens their pristine remoteness. Development of lake trout lakes is not compatible with lake trout management goals but demand for development is high. If development has already taken place, such as on Thunder Lake, then further development controls need to be used.

The Eagle Lake lake trout fishery is being overharvested. Eagle Lake lake trout summer habitat is limited with trout being confined during specific periods to 3 small basins in the West Arm of the lake. Trophy trout which were common in the 40's are now caught only occasionally. This lake is a lake that may benefit from trophy fish management for lake trout. An increase in the tourist industry capacity and occupancy rates on Eagle Lake has placed further stress on an already overstressed population.

As with other sportfish, the question of habitat loss is of vital concern. Potential impacts can occur during various forms of construction and during timber harvesting or mining, hence the same concerns must be dealt with for lake trout. In fact, lake trout are the most sensitive species, in this regard, that we manage.

2.5.4 MUSKELLUNGE

Like lake trout, muskellunge is a highly desirable sport fish to certain sportsmen. Dryden District is internationally famous for its muskellunge fishery, particularly Eagle and Wabigoon Lakes. Upper Manitou Lake is also now being recognized as a trophy "musky" fishery. Muskellunge, muskie or musky, is primarily a trophy fish species noted for its capability of attaining great size (20+ kg.), low population densities even when "abundant" and its fighting qualities.

Management of musky presents unique problems. The musky anglers goal is usually to catch a trophy fish, usually over a given size but also a personal best. Most are dedicated to good musky management, belonging to organizations like Muskie Incorporated and most take great pride in their catch and release program which they have been practicing for some time. The mortality rate for released fish is thought to be as high as 30% for fish landed after a prolonged fight in warmwater conditions. **Musky management must be tailored to allow individuals of this species to remain in the fishery long enough to attain trophy size.** In some lakes, like Kekekwa Lake, few specimens reach legal size and therefore managing for a trophy fishery on this type of lake would be unrealistic. Lakes of this nature could, however, support popular catch and release programs for those wishing a high quality "quantity fishing experience".

Musky are relatively intolerant of heavy harvest pressures. Wabigoon Lake system has been the subject of an ongoing study of this species by the Royal Ontario Museum in cooperation with the M.N.R. under the direction of Dr. Ed Crossman. The field work has been carried out by Bernard Lebeau. Mr. Lebeau indicates that there are very few musky in Wabigoon Lake and he could find no signs of successful reproduction for many years. District musky lakes included in the ongoing musky study are Eagle Lake and the Indian Lake Chain which includes Alexandra, Edward, Langton, Cobble, Whitney and Forest Lakes. Also included in the study are pike lakes such as Rugby and Dore. In some waters the musky appear to have difficulty competing with pike. Musky

productivity in cold water lakes such as Upper Manitou may be low and anything more than minimal harvests from these waters may have serious, negative impacts on the musky fishery.

With the exception of the Wabigoon Lake system, the muskellunge sport fishery in the District appears to be healthy and coping with the current harvest level. The health of this fishery is attributed to the relatively small number of musky anglers and the catch and release program which in 1986 saw the release of 80% of all musky caught for a "kill" rate of 20%.

Muskellunge are multiple and late spawners (mid to late June) and do not attain sexual maturity until they are six to eight years of age when they already weigh three to four kilograms. Musky have very specific spawning habitat requirements and are not tolerant to changes in this habitat.

In order to effectively manage musky we must recognize the following problems and issues:

1. How to provide for increasing angling experiences while continuing to harvest trophy size fish and coping with catch and release mortality.

2. Recognize the differences of musky size potential in different waters.

3. Identify and protect critical musky habitat.

2.5.5. FISHERIES MANAGEMENT AREAS

The present number of fishing divisions for regulatory purposes is inadequate. Because of the different needs and wants of anglers and the different kinds, amounts and uses of the fisheries resource, management directives will be difficult to institute on a District wide basis. Presently, only two fisheries management units (Zone 20 and 22) cover all District waters.

3.0 OPTIONAL MANAGEMENT STRATEGIES AND TACTICS

In the preceding sections a number of fisheries targets have been identified as well as a number of problems and issues associated with achieving these targets.

Baseline targets, that is targets identifying the availability of fish in the District, and broad allocation strategies, were first identified in DLUG. New information resulted in allocation decisions being made since the provincial acceptance of DLUG but these changes have been, for the most part, only refinements of the original targets.

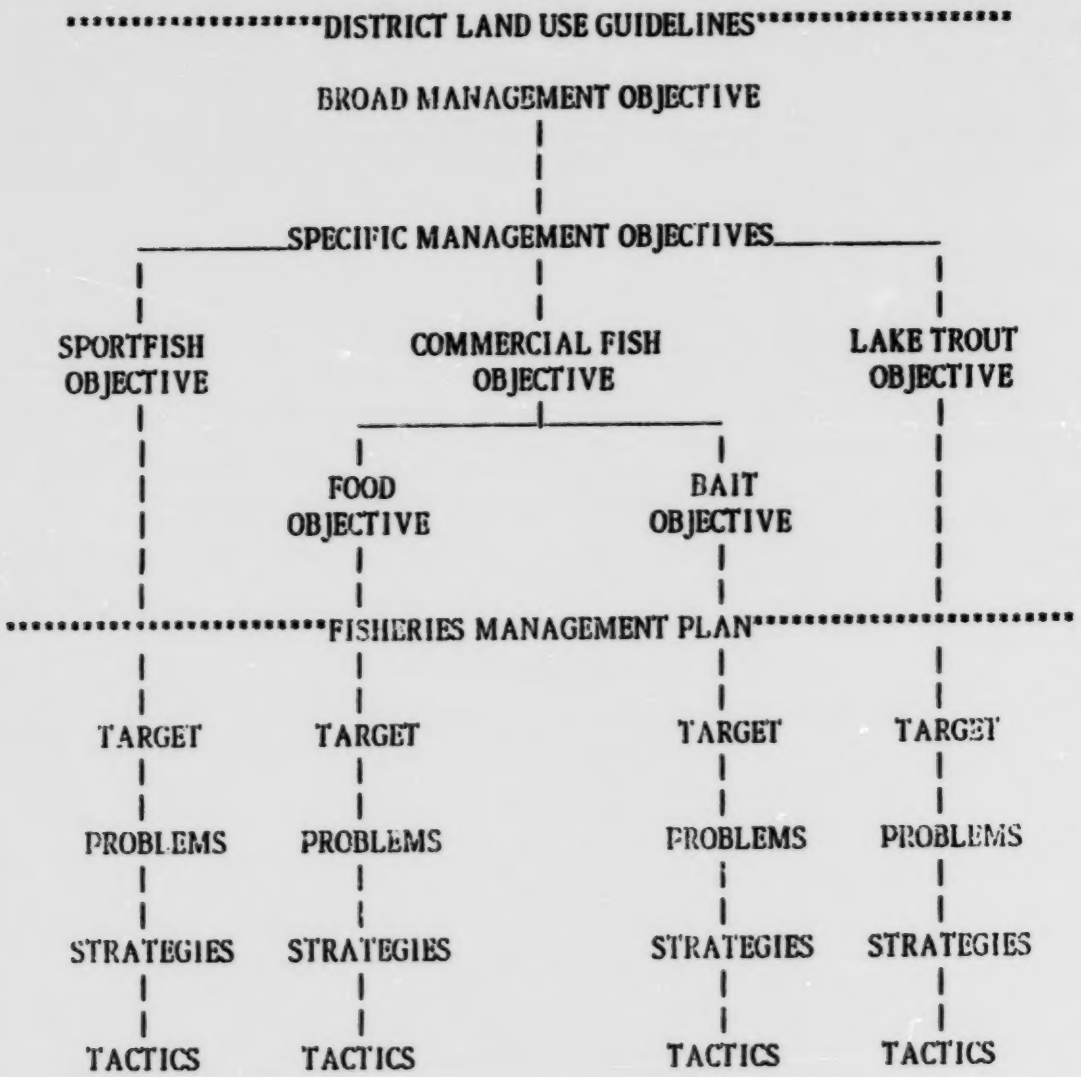
The purpose of presenting optional management strategies and tactics is to summarize the management options available for managing fish resources in the Dryden District. Strategies answer the question "what needs to be done" while tactics answer the question "how is the task to be accomplished"? The relationship between fisheries management objectives, targets, strategies and tactics are set forth in Figure 9.

Enforcement of regulations is not dealt with in a separate way in this planning document. Rather, it is, and will remain, a matter that must always be considered during the formulation of strategies, particularly if the strategy requires a change in regulation. Where appropriate, the question must be asked, "Is this enforceable"?. Enforcement is therefore not being regarded as a separate strategy.

3.1 DISTRICT FISHERIES MANAGEMENT AREAS

There is one strategy that the District is herewith recommending which could be useful in all aspects of fisheries management. In order to implement the various other proposed strategies it is often useful to do so on an area basis rather than on an individual lake by lake basis. Certainly, in recognition of the variety of strategies to be implemented and enforced, it would be more practical to establish regulations over areas much smaller than the present two fisheries divisions (most of the District is

FIGURE 9: Relationship Between Fisheries Management Objectives, Targets, Strategies and Tactics



BROAD FISHERIES MANAGEMENT OBJECTIVE

To protect, rehabilitate, enhance and maintain the district's fish communities and their environment to provide an optimum contribution of fish, fishing opportunities and associated benefits to society.

in one division) now governing such things as creel limits, size limits and seasons. We are therefore recommending the following Fisheries Management Areas be established as a first strategy.

Dryden District Land Use Guidelines identified 16 separate land use areas in Dryden District. Separate divisions were based on the premise that the activity or mix of activities in one area is significantly different from that in adjacent areas or is carried out under different circumstances. Often these divisions reflected different availability of fisheries and fishery users, watershed productivity, development history (especially access) and special purposes (e.g. land set aside for parks).

Dryden District is proposing six fishery management areas for your consideration (Figure 7). They were chosen based on patterns of resource use and related problems and issues. To some extent the boundaries make use of the D.L.U.G. boundaries where appropriate. Area #1 (Anishinabi Lake Area) is a quality fishing area for remote wilderness experience or fly-in area. Area #2 (Cedar-Ord Lakes) is primarily a warmwater species area with high tourism use. The area has the highest number of main base camp tourist lodges. Area #3 (Winnange-Manitou Area) is primarily lake trout habitat and includes most of the Districts lake trout lakes. This area has high non-resident use in summer and is utilized mostly by residents in winter. The area has some limited access lakes mostly in the Pine Road area and several fly-in experiences. Area #4 (Eagle Lake Area) is a highly concentrated tourist resort area, consisting of 25 on the lake lodges and one Indian Reserve. It is the largest District lake with the best data base. Eighty-five percent of summer anglers are non-resident tourist industry clientele. Area #5 (Bunyan Lake) is primarily a warmwater fishery area. Day tripper and camping use is high. Access is good via timber access roads. Non-resident use is high but utilization by residents is extensive also. Area #6 (Wabigoon Lake Area) takes in a total of 8 lakes totalling 16,776 hectares or 8% of the Districts water. This area has a unique problem associated with the muskellunge fishery. It has 14 main base camp lodges in the system and an Indian Reserve. This area is heavily used by local residents.

Fig.7

PROPOSED FISHERIES MANAGEMENT AREAS

DRYDEN
ONTARIO
June 30 1986
Scale 1:250000 Echelle

ARROW HEAD LAKE AREA
CEDAR POND LAKE AREA
EAGLE LAKE AREA
WABIGOON LAKE AREA
BUNYAN LAKE AREA
MINNAMOOSE - MANITOU LAKE AREA

TABLE 7: SUMMARY OF THE IDENTIFICATION AND EVALUATION OF MANAGEMENT OPTIONS

A: Commercial Baitfish - DLUG Target - 183,000 dozen
Interim Target - 183,000 dozen

1. Issue/Problem - There is a lack of knowledge available about baitfish production and the factors influencing it. Further, there are a series of assumed problems dealing with the biological productivity of certain waters (e.g. decrease in productivity because of winter kill, summer kill, introduction of unwanted species and the influence of habitat characteristics) and problems centred around the use of available gear. All of these problems can only be dealt with through using accurate harvest records as a measure of actual production. Managers often do not know which lakes are baitfish lakes. Refer to Page 37

IDENTIFICATION		DISCUSSION	
Optional Strategies	Optional Tactics	Strategies	Tactics
i) Increase baitfishermen awareness of the significance of annual returns as a monitoring and management tool.	(a) Increase enforcement effort regarding submission of accurate annual returns.	Without accurate annual returns no real management of the resource is possible.	(a) Adoption of this tactic could solve much of the management problems. May require implementation of a methodology for monitoring accuracy as a result of forced compliance.
	(b) Hold annual meetings with the baitfishermen to allow all parties to benefit from sharing in discussions on mutual problems, concerns and requirements and encourage the submission of accurate data.	Better communications may result in better data. If the baitfishermen do not wish to comply then the Ministry cannot be held responsible for lack of management.	(b) Any improved communications between the MNR and the baitfish industry could improve management of the resource. This is the more desirable alternative tactic; the baitfishermen have a responsibility to help manage their resource.
ii) Monitoring of baitfish harvests in the field.	(a) Report harvest on block basis. (b) Conduct monitoring of baitfish harvests from specific lakes by MNR staff to obtain more accurate information on the productivity of baitfish lakes. (c) Conduct monitoring of baitfish harvests from specific lakes by both the MNR staff and the baitfishermen.	Information on species present and lakes fished essential to management. This is a manpower intensive and expensive strategy and therefore the least acceptable.	In general, all efforts to get data are essential to good baitfish management. Currently we do not know which blocks are being utilized. The industry is generally against reporting by lake or block. Adoption of these tactics will build up a better inventory of baitfish waters and enable MNR to better manage these areas for the benefit of the baitfishermen and the resource.

TABLE 7: SUMMARY OF THE IDENTIFICATION AND EVALUATION OF MANAGEMENT OPTIONS

A: Commercial Baitfish - DLUG Target - 183,000 dozen
Interim Target - 183,000 dozen

2. Issue/Problem - The demand for baitfish licences exceeds the availability of baitfish blocks. Refer to Page 37

IDENTIFICATION		DISCUSSION	
Optional Strategies	**Optional Tactics**	**Strategies**	**Tactics**
i) Maintain the current number of blocks and continue to allow new entrants into the baitfish industry only through transfer of whole licences, or blocks.	(a) Continue to licence by block. (b) Continue to allow transfer of whole blocks or whole licences to new licencees, thereby creating the opportunity for more licences.	This strategy is the existing system. The baitfish industry appears to be by serving the area well. There is, however, a demand for blocks that is not being satisfied.	Licencing by block is working well. Tactic (b) is also in practice now but current licencees do not readily give up blocks regardless of how many they hold a licence to.
ii) Subdivide existing baitfish blocks to accommodate the demand for new licences.	(a) Establish a policy to allow for the subdivision of baitfish blocks. Identify blocks which could be subdivided and obtain input from the fishermen as to the extent that subdivision could occur.	This strategy is difficult to implement since few blocks have a sufficient allowable yield to subdivide and obtaining mutual agreement as to subdividing details could be difficult. Probably not practical in most instances.	This tactic would be generally difficult to implement and would occur rarely. It would be difficult for the fishermen to agree on how to subdivide since most blocks have a higher yield area which they would be reluctant to give up.
iii) Increase the number of licences through redistribution of underutilized blocks.	(a) Identify non-utilized or under-utilized blocks, establish a policy for their disposal.	The fundamental question regarding this strategy is whether to continue to let the industry manage itself and the resource or whether the resource should be managed by M.N.R.	This tactic would be difficult to implement at present mainly because non-utilized blocks are not readily identified because of lack of block specific harvest data.

TABLE 7: SUMMARY OF THE IDENTIFICATION AND EVALUATION OF MANAGEMENT OPTIONS

A: Commercial Baitfish - DLUG Target - 183,000 dozen
Interim Target - 183,000 dozen

3. Issue/Problem - Baitfishermen are concerned that the production of baitfish may be compromised as a result of habitat deterioration or alteration. This is due in part to timber harvesting and a lack of knowledge of the relationship between treed shorelines and the biology of baitfish. The introduction of wild rice may also alter baitfish habitat. Refer to Page 37

IDENTIFICATION		DISCUSSION	
Optional Strategies	**Optional Tactics**	**Strategies**	**Tactics**
i) Continue to provide protection to known harvested baitfish lakes through the areas of concern concept within timber management planning and a commitment to integrated resource management.	(a) Continue to provide input to the timber management planning process regarding baitfish lakes. (b) Obtain a commitment from the baitfish industry to cooperate with MNR in updating current knowledge on the distribution of lakes known to be harvested for baitfish in order to do (a) above. (c) Encourage baitfishermen to advise MNR on fish species present in harvested baitfish lakes to facilitate better management. (d) MNR to continue to contact baitfishermen prior to the authorization of wild rice introductions.	This strategy is currently being carried out in the District. It would work much better if we had inventory input for baitfish lakes from the baitfish industry.	The adoption of all tactics mentioned would greatly enhance baitfish management in the District and allow MNR to better serve existing licencees. Tactic (b) is critical to the success of the strategy.
ii) Identify the relationship between baitfish abundance and timber harvesting activities in the vicinity of baitfish lakes.	(a) Promote experimental management projects in conjunction with the baitfishermen in the vicinity of baitfish lakes. Compare the effects of various cutting techniques on the abundance of baitfish.	This strategy is a long term research project that could best be carried out by organizations who have a research mandate. Funding can be supplied by M.N.R. or the baitfish industry.	In order to adopt this tactic, inventory information is necessary for study lakes. Studies of this kind should promote the submission of inventory data on baitfish lakes by the fishermen to the M.N.R. because of the mutual benefits.

TABLE 7: SUMMARY OF THE IDENTIFICATION AND EVALUATION OF MANAGEMENT OPTIONS

A: Commercial Baitfish - DLUG Target - 183,000 dozen
Interim Target - 183,000 dozen

4. Issue/Problem - There is a question on the capability of the baitfish industry to satisfy specific tourist operator requirements and there is a need to provide an appropriate forum for discussions between the two industries.

IDENTIFICATION		DISCUSSION	
Optional Strategies	**Optional Tactics**	**Strategies**	**Tactics**
i) Maintain the current practice of licencing a specific lake to a tourist operator to allow for taking of bait to supply his own guests.	(a) Maintain the existing policy of licencing a specific lake to a tourist operator only when documentation can be provided that a baitfish harvester cannot or will not meet the operators needs.	There is a declared need for specific lakes by the tourist industry but this matter is an ongoing source of conflict between the tourist industry and the baitfish industry. There are currently 7 tourist outfitters licenced to 13 individual waters (1985).	This policy is a source of conflict between the two industries. Tourist outfitters claim baitfishermen should not be in the tourist industry business and the baitfishermen claim the tourist industry should not be in the bait business. This policy may partially resolve itself if communications between the industries improve.
ii) Eliminate licencing of specific lakes to tourist outfitters for specific needs.	(a) Change policy to allow licencing of specific blocks only.	This could create difficulties for outfitters who identify problems in getting acceptable service and who have been licenced to specific waters for 20+ years. Currently some lakes are fished by the block holder and the tourist operator resulting in possible overharvest situations.	This tactic would meet with objection of current tourist industry specific lake licencees who are dissatisfied with the baitfish industry service. This tactic would satisfy the baitfish industry who claim they have the capability and desire to meet the needs of the tourist industry.
iii) Improve communications between the baitfish industry and the tourist industry to try and resolve the problem.	(a) Provide the means whereby both industries and the MNR can enter into meaningful discussions to resolve the problems. (b) Encourage both industries to attend respective association meetings.	MNR should act as a liaison whenever possible to bring industries together.	These tactics if adopted and successful could g a long way to solving the few problems that exist between the tourist industry and baitfish industries.

TABLE 7: SUMMARY OF THE IDENTIFICATION AND EVALUATION OF MANAGEMENT OPTIONS

B: Commercial Food Fish - DLUG Target - 83,218 kg.
Interim Target - 83,218 kg. (76,900 kg. whitefish, 6,318 kg. sportfish)

1. Issue/Problem - The main issue on inland lakes commercial fisheries is underutilization of the resource. Refer to Page 37

IDENTIFICATION		DISCUSSION	
Optional Strategies	**Optional Tactics**	**Strategies**	**Tactics**
i) Maintain current whitefish quotas on the lakes and harvest to the quotas.	(a) Maintain current quotas and achieve adequate harvest through enforcement policies. (b) Cancellation of licences which are not utilized. (c) Reduction or removal of quotas for non-utilized sport species quotas.	Quotas based on long term harvest data and/or MEI. Reduction would effect economy. Severe underharvesting is a waste of resources that could be utilized by someone else.	All of these tactics would provide for better utilization of these fisheries. The resources should not be tied up by idle licences. The reduction of quotas for non-utilized sport species is an objective to be persued for the solution of another problem as well. (See next page).
ii) Reduce whitefish quotas.	(a) Reduce whitefish quotas if lakes are incapable of maintaining current quotas. (b) Issue new licence for non-utilized portion of whitefish quota.	Reduction in quotas should only be to align with the lakes production capability. Loss in revenue is a result unless tactic (b) is used.	Tactic (a) has been part of management policy for years. Tactic (b) may be difficult to implement but would probably be effective in encouraging better utilization. It could only be effective on large lakes where the unharvested portion of a licence quota is large enough to form an economically viable portion of another licence.

TABLE 7: SUMMARY OF THE IDENTIFICATION AND EVALUATION OF MANAGEMENT OPTIONS

B: Commercial Food Fish - DLUG Target - 83,218 kg.
Interim Target - 83,218 kg. (76,900 kg. whitefish, 6,318 kg. sportfish)

2. Issue/Problem - Several user groups currently compete for limited sportfish (walleye, northern pike and lake trout) resources. Projected increase in demand may intensify user conflict with commercial fishermen. This issue is related mainly to Eagle Lake and is minimal on inland lakes. Incidental sportfish quotas are considered minimum for the harvest of the target species (whitefish). Refer to Page 37

IDENTIFICATION		DISCUSSION	
Optional Strategies	**Optional Tactics**	**Strategies**	**Tactics**
1) Reduce the harvest of walleye, pike and lake trout by the commercial fishery.	(a) Lower existing quotas or establish nil quotas for sportfish on commercial licences. (b) Eliminate gill nets and implement use of entrapment gear only. (c) Encourage the industry to seek new markets for burbot, mullet, cisco as an alternative income to gamefish. (d) Try new net set locations.	On inland lakes there is little potential for harvest reductions for sportfish with present gear. Could create some economic impact for gear changeover. Since harvests are already minimal for sport species the loss of these would have minimal economic impact on the commercial fisherman.	A combination of all tactics would probably be necessary to eliminate sportfish quotas. Some long term economic loss to fishermen. Short term gain economically if there is a buy out of sport fish quotas. There would be a cost involved in gear type conversion. On Eagle Lake the sportfish quotas are more significant and changeover to impounding gear could eliminate sportfish harvest. Economic cost would be significant. The use of impounding gear would be more acceptable by other users than the current use of gill nets.
ii) Eliminate the commercial fishery from the problem lake(s).	(a) Eliminate commercial fisheries through government buy out.	Economic loss would be significant. Whitefish harvest may be helpful in maintaining species balance.	(a) Applicable mainly to Eagle Lake because of high sportfish quotas. Loss to area economy may not be offset by overall economic gain through sport fishery.

TABLE 7: SUMMARY OF THE IDENTIFICATION AND EVALUATION OF MANAGEMENT OPTIONS

B: Commercial Food Fish - DLUG Target - 83,218 kg.
Interim Target - 83,218 kg. (76,900 kg. whitefish, 6,318 kg. sportfish)

3. Issue/Problem - Pollution has eliminated some potential commercial fish harvests. Mercury contamination continues to be a problem on Clay Lake which has not been licenced since 1971. Clay Lake has an allowable whitefish annual yield of 2,586 kg. Refer to Page 38

IDENTIFICATION		DISCUSSION	
Optional Strategies	**Optional Tactics**	**Strategies**	**Tactics**
Wait for the natural slow elimination of the pollution from the system.	Sample fish for contaminants and their levels.	Waiting for the passage of time while mercury is eliminated naturally is the only viable solution.	MNR and MOE are sampling and testing every year, reports are available annually.

TABLE 7: SUMMARY OF THE IDENTIFICATION AND EVALUATION OF MANAGEMENT OPTIONS

B: Commercial Food Fish - DLUG Target - 83,218 kg.
Interim Target - 83,218 kg. (76,900 kg. whitefish, 6,318 kg. sportfish)

4. Issue/Problem - Coarse fish such as suckers, bullheads and burbot could be made available to the commercial fishery but are presently underutilized. Refer to Page 3

IDENTIFICATION		DISCUSSION	
Optional Strategies	**Optional Tactics**	**Strategies**	**Tactics**
Encourage the fishing industry to seek new markets.	(a) The commercial fishermen's organizations can pursue the the matter themselves through normal channels of commerce. (b) MNR can pursue the matter through the appropriate provincial and federal agencies	Such a strategy would not only take advantage of an underutilized resource but could help fill the economic hole left if gamefish species were eliminated from the quotas (see Issue/Problem B2). There may be no market now, but one might be developed.	(a) This tactic is the logical one in that it is to the commercial fishermen's advantage to have a new market. (b) The rationale for this tactic would be that it is to better manage the resources by providing an alternative for gamefish in the income to the fisherman.

TABLE 7: SUMMARY OF THE IDENTIFICATION AND EVALUATION OF MANAGEMENT OPTIONS

B: Commercial Food Fish - DLUG Target - 83,218 kg.
Interim Target - 83,218 kg. (76,900 kg. whitefish, 6,318 kg. sportfish)

5. Issue/Problem - On Eagle Lake (Management Area #4) whitefish quotas and harvests are above the allowable yield. This harvest level has been maintained for 12+ years. Low mean age may be a sign of stress. The population is being monitored for additional signs of stress. Refer to Page 38

IDENTIFICATION		DISCUSSION	
Optional Strategies	**Optional Tactics**	**Strategies**	**Tactics**
i) Reduce whitefish quota and harvest to allowable yield level.	(a) Reduce whitefish quota to allowable yield level. (b) Make up deficit of whitefish with underutilized species by providing financial incentives where necessary (see Issue/Problem B4).	Further monitoring necessary before implementing this strategy. Economic loss to licencees and community.	(a) Requires further monitoring. Economic loss involved. (b) Little current potential for the underutilize species available with the current market conditions (see Issue/Problem B4).
ii) Maintain the current whitefish quota and harvest.	(a) Maintain the current whitefish quota while continuing and enhancing the present commercial fish monitoring program to ensure the stability of the whitefish population. Adjust quota annually if there are continued signs of stress.	Whitefish population has been maintaining current quota levels for 12+ years with minimal signs of stress. Maintaining current quotas results in nil economic loss to licencee or community.	(a) Practical for short term. Changes in the whitefish population could be very rapid, so close monitoring is essential to this tactic and the strategy.

TABLE 7: SUMMARY OF THE IDENTIFICATION AND EVALUATION OF MANAGEMENT OPTIONS

C: Sportfish DLUG Target 444,000 kg. 222,000 angler days
Interim Target 425,500 kg., Number angler days and satisfaction level dependent on selection of tactics

1. Issue/Problem: There is an indication of overharvest of walleye and northern pike based on information from the last Federal Provincial Angler Survey (1980). This applies to all the inland waters of Dryden District, however, the survey was done on a District wide basis and it did not identify lakes or groups of lakes where overharvests are occurring. Eighty-one percent (81%) of the fishing pressure comes from non-residents of Ontario who primarily use tourism facilities which generate significant economic revenues. Refer to Page 40

IDENTIFICATION		DISCUSSION	
Optional Strategies	**Optional Tactics**	**Strategies**	**Tactics**
(i) Improve angler harvest information base in District lakes (Eagle Lake has good information).	(a) Use 1985 Angler Survey to verify projections (b) Conduct area specific surveys to identify overharvested lakes/groups of lakes.	It is the opinion of the District that this strategy is necessary prior to implementing any other strategies for controlling harvests (except Eagle Lake). It is also necessary to determine the influence of Crown land Camping Program or angler harvest.	Both tactics are essential because strategies for reducing harvest must be based accurate information. In some areas or lakes the tourist operators could assist MNR with tactic (b) (areas 1 and 3). Secondly, there would be a need to implement tactic (b) in most heavily fished areas i.e. Highway 105 corridor and Gordon Indian Lake Chain, Area 2.
(ii) Reduce current and projected angler harvest of walleye and northern pike to the allowable yield level.	(a) Reduce the length of the open season for walleye i.e. close late winter and delay spring opening. (b) Establish closed season for northern pike. (c) Control harvest through number of licences or tags. (d) Expand Crown land camping zones. (e) Control the expansion of tourist industry (new starts or existing operations) where dependent on walleye and pike resources. (f) Reduce daily catch/possession limits for both species to three, four or five fish.	The District is of the opinion that indeed overharvesting is occurring in heavily fished areas, parts of area 2 (i.e. Highway 105 corridor) parts of area 5 and 6. More specific user information is required before dealing with this strategy.	All tactics with exception of (d) and (e) could be applied in different areas and to different user groups i.e. non-residents and residents depending on the extent of overharvesting. Tactic (d) would apply only to non-residents in specific areas or groups of lakes and requires a complete evaluation of existing program. The control of new tourism starts is a general tactic but given the current overharvest and the projected increase in non-residents it is an important option. Controlling the expansion of existing operations would be specific to certain lakes or groups of lakes dependent on extent of overharvest. There are important economic considerations for (e) which would require consultation with MTR and the industry plus a look at the mechanisms

TABLE 7: SUMMARY OF THE IDENTIFICATION AND EVALUATION OF MANAGEMENT OPTIONS

C: Sportfish

IDENTIFICATION		DISCUSSION	
Optional Strategies	**Optional Tactics**	**Strategies**	**Tactics**
	(g) Use combination limits for both species i.e. 7 fish, 3 walleye, 4 northern pike. (h) Use annual limits for both species. (i) Restrict use of live bait.		available for implementation. Generally Tactics a-e control or reduce access to the resource and thereby influence angling pressure (number of angler days. These tactics reduce harvest but will help to maintain individual satisfaction levels (kg./angler day). Tactics f-i tend to reduce individual harvests and thereby satisfaction on a purely poundage basis. A combination of both types of tactics would be used.
(iii) Promote the recreational aspects of fishing (catch and release) and deemphasize harvest.	(a) Promote catch and release and trophy fishing. (b) Utilize minimum, maximum and slot limits. (c) Use of bait restrictions i.e. barbless hooks and live bait.	Requires a change in fishing ethics. Strategy could be promoted or legislated. It could be encouraged in certain areas and for certain users i.e. non-residents and/or residents.	Tactics are closely interrelated to each other and may be more sited to remote fishing opportunities offered by the tourist industry. These tactics, to a limited extent, are being used by the tourist industry (camp policies) and it may not be necessary to legislate but depends on circumstances (how many years or different user groups). Tactic (b) is somewhat experimental, size limits seem to work in on some lakes and not others. Would be helpful to develop program with some tourist operators to explore the benefits.
(iv) Encourage the harvest of underutilized species in place of walleye and northern pike.	(a) Combination limits for walleye and bass on certain lakes or or groups of lakes ie. 7 fish, 4 walleye, 3 bass. (b) Promotional literature on the merits of smallmouth fishing (good eating and excellent sport). (c) Encourage derby fishing for bass and perch.	Strategy most appropriate in areas 6 and parts of 2 (Perrault Lake, Wabaskang Lake Chain).	Tactics could be done in conjunction with one another. In situations where bass and walleye coexist it is considered good management to harvest bass to keep them in check. Smallmouth bass appear to expand at the expense of walleye in situations where walleye are heavily fished.

TABLE 7: SUMMARY OF THE IDENTIFICATION AND EVALUATION OF MANAGEMENT OPTIONS

C: Sportfish

IDENTIFICATION		DISCUSSION	
Optional Strategies	**Optional Tactics**	**Strategies**	**Tactics**
(v) Create additional walleye lakes.	(a) Identify candidate lakes where walleye are absent and introduce adult walleye.	This strategy may increase fishing opportunities to some degree but by itself is thought to be of limited assistance in dealing with walleye concerns.	Adult transfers are known to be the most cost effective method of expanding the range of walleye. Stocking eggs or fry and even fingerlings has produced only marginal results.

TABLE 7: SUMMARY OF THE IDENTIFICATION AND EVALUATION OF MANAGEMENT OPTIONS

C: Sportfish

2. Issue/Problem: On Eagle Lake, Area 4, the greatest single fisheries problem is that the amount and projected harvest of walleye exceeds the allowable yield. The quality of the fishery has declined and stocks are clearly showing signs of exploitation stress (Eagle Lake Fisheries Atlas). Northern pike are heavily harvested and some management action may be required to ensure stable production at high harvest levels. Refer to Page 40

IDENTIFICATION		DISCUSSION	
Optional Strategies	**Optional Tactics**	**Strategies**	**Tactics**
(1) Reduce the current and projected harvest of walleye to the allowable yield.	(a) Reduce the length of the open season i.e. late winter and delay spring opening for walleye. (b) Establish closed season for northern pike to protect brood stocks. (c) Prevent further expansion of the tourist industry capacity. (d) Support any efforts which MTR might consider to reduce or consolidate tourism operations. (e) Reduce creel limits of walleye to three, four or five fish. (f) Combination on daily catch/ possession limits, bass, walleye, pike and sauger, for example 8 fish of which no more than three or four could be walleye. (g) Develop slot size limit for walleye if biologically appropriate (implicit is catch and release). (h) Consider trophy regulations for northern pike.	There is a definite urgency to reduce the level of walleye harvest. Given that the clientele of the tourist industry are the most significant user they will certainly have to be involved in selection of tactics associated with the strategy.	Tactics a-d generally serve to reduce fishing pressure by cutting down angling opportunities Tactics a and b will have some affect on reducing overharvest but by themselves would be inadequate. They will protect exploitation of large brood stock fish. There would appear to be a need to stop further expansion of tourist capacity and if possible reduce it to some extent. Additional consultation with industry and MTR will be necessary to develop appropriate mechanisms. Tactics b and h are specific to pike. As harvest controls are applied to walleye pressure may shift to northern pike and thereby they may require some brood stock protection. Tactics e, f and g are the type of harvest controls which are most likely to stablilize the walleye fishery. Tactic f may be more suitable in that it encourages harvest of underutilized species (maintain community balance) and serves to lower harvest of walleye. It would appear that a combination of tactics will be necessary i.e. control angler numbers and harvest. If angler numbers can not be controlled, creel limits will have to be much more stringent. There would be significant economic loss to the industry as clients would probably go elsewhere.

TABLE 7: SUMMARY OF THE IDENTIFICATION AND EVALUATION OF MANAGEMENT OPTIONS

C: Sportfish

3. Issue/Problem: Sports fishermen are prejudiced against certain other game species (i.e. smallmouth bass, yellow perch and sauger) with the result that these species are being underutilized on Eagle Lake as well as other inland lakes. Refer to Page 41

IDENTIFICATION		DISCUSSION	
Optional Strategies	**Optional Tactics**	**Strategies**	**Tactics**
Encourage the harvest of under-utilized species in place of walleye and northern pike.	(a) Combination limits for walleye and bass on certain lakes or groups of lakes i.e. 7 fish, 4 walleye, 3 bass. (b) Promotional literature on the merits of smallmouth fishing (good eating and excellent sport). (c) Encourage derby fishing for bass and perch. (d) Combination limit for walleye and sauger on inland waters and Eagle Lake.	Strategy most appropriate in areas 6 and parts of 2 (Perrault Lake, Wabaskang Lake Chain), also area 4.	Tactics could be done in conjunction with one another. In situations where bass and walleye coexist it is considered good management to harvest bass to keep them in check. Smallmouth bass appear to expand at the expense of walleye in situations where walleye are heavily fished. Tactic (d) could be, for example, a limit of a combination of ten walleye/sauger of which only four, five, or six can be walleye. Filleted walleye and sauger will be considered walleye since field identification of a cleaned walleye or sauger is almost impossible.

TABLE 7: SUMMARY OF THE IDENTIFICATION AND EVALUATION OF MANAGEMENT OPTIONS

C: Sportfish

4. Issue/Problem: Traditionally, M.N.R. has not promoted special or trophy fisheries. Existing regulations, as they apply to this District, deal only with quantity fisheries. There has been increasing interest in the catch and release principle lately, especially on remote fly-in lakes, by tourist operators and commercial air carriers. This allows a quality fishing experience where quality is defined as any combination of the following: A. Remote or "wilderness" B. Quantity of fish (high C.U.E.) with catch and release C. Trophy size, or at least "personal best". Trophy fisheries in the traditional sense, have not been developed in this District. This relates, in many cases, to Issue/Problem C: 6. Refer to Page 43

IDENTIFICATION		DISCUSSION	
Optional Strategies	**Optional Tactics**	**Strategies**	**Tactics**
Promote the recreational aspects of fishing (catch and release) and deemphasize harvest.	(a) Promote catch and release and trophy fishing. (b) Utilize minimum, maximum and slot limits. (c) Use of bait restrictions i.e. barbless hooks and live bait.	Requires a change in fishing ethics. Strategy could be promoted or legislated. It could be encouraged in certain areas and for certain users i.e. non-residents and/or residents.	Tactics are closely interrelated to each other and may be more suited to remote fishing opportunities offered by the tourist industry. These tactics, to a limited extent, are being used by the tourist industry (camp policies) and it may not be necessary to legislate but depends on circumstances. Tactic (b) is somewhat experimental, size limits seem to work in on some lakes and not others. Would be helpful to develop program with some tourist operators. These tactics could allow a restricted amount of angling on small, remote lakes otherwise not productive enough to support an intense fishery.

TABLE 7: SUMMARY OF THE IDENTIFICATION AND EVALUATION OF MANAGEMENT OPTIONS

C: Sportfish

5. Issue/Problem: The question of habitat loss is of vital concern to all fisheries on inland lakes, and on walleye spawning streams on parts of Eagle Lake. Refer to Page 43

IDENTIFICATION		DISCUSSION	
Optional Strategies	**Optional Tactics**	**Strategies**	**Tactics**
(i) Update the data base which identifies sensitive habitat.	(a) Initiate special habitat surveys to identify such features as spawning areas and nursery areas, particularly on waters where potential impacts could occur through logging, road building, cottage and dock construction, subdivisions, etc.	Before habitat can be protected it must be identified and recorded. In order to protect a nursery area from beach development, for example, the importance of it in terms of species use and alternative similar areas must be documented.	(a) Such sensitive habitat may not all have been identified during large lake inventories. Many small bodies of water, including streams, have not been inventoried.
	(b) Continue and accelerate the aquatic habitat inventory program in the District, particularly in the vicinity of areas scheduled for timber harvesting, mining or other development activities.		(b) In order to inventory water bodies ahead of the timber planning, it is necessary to get crews and equipment into unaccessed lakes and hence costs are rising.
	(c) Investigate the degraded walleye spawning streams on the central portion of Eagle Lake to identify the basis of the problem.		(c) The importance of this tactic is underscored by the fishing pressure on Eagle Lake Walleye.
(ii) Use the information to protect sensitive habitat from impacts by designating the sites and treating them appropriately during the various planning exercises.	Use information as input during Integrated Resource Management Planning, Subdivision approvals, severance approvals and work permit approvals for such things as beaches, docks, bank stabilization, stream crossings, etc.	This strategy is in use now using the present level of informaiton. Guidelines have been developed for protecting fish habitat.	This tactic is in current use.
(ii) Rehabilitate degraded habitat.	(a) Use special projects such as C.F.I.P. for spawning bed improvements, etc.	This can be a very constructive approach to improving populations through habitat improvement.	(a) This is being done now and is very worthwhile.
	(b) Clean plugged spawning streams of debris and beaver.		(b) Some of this is being done now, it is labor intensive and often short-term in results.

TABLE 7: SUMMARY OF THE IDENTIFICATION AND EVALUATION OF MANAGEMENT OPTIONS

C: Sportfish

6. Issue/Problem: Conflicts exist between the tourist industry and local anglers regarding road access. This is due to the perception by anglers that road access should be available to most waterbodies which is in conflict with the tourist industry perception that access is detrimental to various aspects of the recreational opportunities which they provide (see Issue/Problem C: 4). This perceived problem exists wherever there are remote lakes, particularly in Fisheries Management Areas 1, parts of 2 and area 3. Refer to Page 44

IDENTIFICATION		DISCUSSION	
Optional Strategies	**Optional Tactics**	**Strategies**	**Tactics**
(i) Increase public awareness on both sides of the issue, regarding the perceived and real values involved.	(a) Promote the attendance of representatives of both tourist industry organizations and hunters and anglers clubs at each others meetings. (b) Establish a series of seminars to deal with the topic, attendance by the above and general public.	Awareness on both sides of the issue cannot help but increase understanding of the reason. Both sides have a legitimate concern which must be understood, at least, if not agreed to. Tourism is the second most important industry in this District now.	This fisheries management planning exercise can be regarded as a step (tactic) in this direction as long as there is sufficient feed back from both groups.
(ii) Identify and designate lakes for the primary use of the tourist industry, or for the general public, in certain management areas (e.g. 1, parts of 2 and 3).	(a) Designate specific lakes for one of the two types of use within certain management areas. (b) Control the type of user and the numbers through controls such as the Crown Land Camping Program, Land Use Permits. (c) Control access by users through physical controls such as removal of road closures and signs, physical barriers. (d) During timber management planning provide input to effectively use one of the above tactics.	This strategy would officially recognize and support the special needs of the tourist industry to supply a fishery for a significant segment of their market. It creates an assurance for the future and therefore stability. It may well encourage outfitters to take better care of the resources. The segment of the tourism clientele this caters to is that group that wants remote or "wilderness" fishing with easy access (i.e. fly-in as opposed to canoe and portage, for example). This can **only** be available in a lake **not** accessed by road. The local resident fishing population is not expected to increase, therefore need not necessarily expect an increased supply of waters. The alternative to this strategy is to allow all lakes to be accessible to all users and lose a valuable segment of the industry.	(a) The number of lakes designated for the tourist industry would not be great. They would mostly be lakes now used as fly-in fisheries by the tourist industry. (b) This tactic is in general use now and, in an indirect way, goes far toward implementing the strategy. (c) In a few areas this tactic is in effect now but is difficult to enforce. Acceptance of the legitimacy of the strategy would help. (d) This tactic is now is use, again it would be more acceptable to the general public if they accepted and understood the reason for the strategy.

TABLE 7: SUMMARY OF THE IDENTIFICATION AND EVALUATION OF MANAGEMENT OPTIONS

D: Lake Trout DLUG Target - 11-32,000 kg.
Iterim Target - 31,700 kg. - 15,850 Angler-Days

1. Issue/Problem - Current and projected harvests of lake trout are above the allowable yield for all District waters. Some lakes are more heavily fished than others. Specifically, the harvest of lake trout from Eagle Lake is twice the allowable yield. Refer to Page 45

IDENTIFICATION		DISCUSSION	
Optional Strategies	**Optional Tactics**	**Strategies**	**Tactics**
i) Upgrade harvest information.	(a) Conduct creel census user surveys to identify more specifically lakes or areas of lake trout overharvest.	This strategy should be done prior to implementing any harvest reduction strategies.	Tactic to be conducted primarily in area 1 and 3 where major concentrations of lake trout lakes occur. This tactic would assist in evaluating the influence of Crown Land Camping Program on harvest levels.
(ii) Implement harvest restrictions to reduce lake trout harvests.	(a) Reduce length of open season i.e. close winter, fall, spring or summer fishing seasons. (b) Restrict the number of tags or licences. (c) Expand the area where Crown land camping restrictions occur. (d) Restrict non-resident lake trout anglers to property owners or to those staying at tourist accommodation. (e) Restrict the expansion of the tourist industry on lake trout lakes dependent on lake trout resources by controlling the the disposition of Crown land for expansion or new starts, and by supporting other agencies (i.e. MTR) in efforts to control or consolidate tourism expansion.	A reduction of lake trout to the allowable yield level will likely be necessary. It is important for anglers to appreciate the value of this resource and further that they will have to participate in the conservation of this species.	There are two broad classes of tactics. Tactic A-E control access to the resource and thereby lower the angling pressure. Tactics F-H more directly control the individual anglers harvest. The major consideration in selecting these tactics is whether or not it is better to limit the number of angler days or the harvest per angler day. Many of the tactics could be applied equally or differentally among user groups, meaning regulations could be the same or different for residents, non-residents, etc. Economic consideration will have to be given to tactics which will influence the number of clients using tourist facilities. Additionally, tactics could be applied in different areas for example, areas 1 and 3.

TABLE 7: SUMMARY OF THE IDENTIFICATION AND EVALUATION OF MANAGEMENT OPTIONS

IDENTIFICATION		DISCUSSION	
Optional Strategies	**Optional Tactics**	**Strategies**	**Tactics**
	(f) Establish an annual creel limit (a specified number of fish for a year). (g) Reduce the daily catch and possession limit to two or one trout. (h) Restrict the use of bait (ie. artificial bait only).		
(iii) Promote, market and regulate catch and release fishing.	(a) Use of single barbless hook. (b) Live bait restrictions.	Lake trout fishing is likely to remain popular despite harvest restrictions. This strategy will allow for high participation but low harvest strategy would also be appropriate on smaller lakes with low harvest potential. Catch and release of lake trout may kill too many fish in summer.	These tactics would also be necessary if trophy fisheries are to be established. These tactics do not necessarily require legislation in fact some tourist operators are already using them under camp policies as are some sportsmens organizations.
(iv) Encourage the harvest of alternate species such as whitefish.	(a) Promote angling for whitefish in both summer and winter.	Harvest restrictions on lake trout may prompt an early acceptance of under-utilized species. This strategy would be limited to lakes where there are catchable populations of whitefish.	This tactic would most appropriately be implemented by effective promotional campaign with various user groups.
(v) Encourage the use of under-utilized waters.	(a) Providing improved road access to waters for resident anglers. (b) Disperse non-resident anglers by use of Crown land camping closures. (c) Encourage tourist operators to use daily excursions to small in-accessible lakes.	This strategy may be of limited value if most lake trout waters are currently being fished. This does not reduce the harvest, but only redistributes it.	Tactic could only be implemented with an improved knowledge of existing use patterns. All tactics have the potential to generate user group conflicts if distributional patterns are not clearly understood. Most lake trout lakes occur in areas 1 and 3. Tactic (a) could lead to conflict with tourist industry (see issue/ problem C: 6, Sportfish).

TABLE 7: SUMMARY OF THE IDENTIFICATION AND EVALUATION OF MANAGEMENT OPTIONS

D: Lake Trout - DLUG Target 2.0 kg./angler day
Interim Target - unknown at this time

2. Issue/Problem - The current level of lake trout harvest which is above the allowable yield is providing angler satisfaction level of 1.8 kg. per angler day and 1.2 kg. per angler day on inland lakes and Eagle Lake respectively which are below the DLUG target of 2.0 kg. Refer to Page 46

IDENTIFICATION		DISCUSSION	
Optional Strategies	**Optional Tactics**	**Strategies**	**Tactics**
(i) An overall strategy which reduces harvest by restricting access to the resource (reduce angler days) will help to maintain angler satisfaction levels.	Tactics A-E, page 71 Control angler days.	The number of non-resident anglers is projected to increase, if this goes unchecked overharvesting will increase. However, there is also a need to reduce existing angler harvests but it is unlikely that this can be accomplished with strategy (i) without a significant influence on local economics. To some degree therefore, existing harvests will have to be lowered by Strategy (ii). In summary, it would seem that a combination of the two approaches is most appropriate.	See discussion on page 71.
(ii) An overall strategy which reduces harvest by limiting the take home catch (creel) will drop the overall angler satisfaction on a poundage basis.	Tactics F-H, page 72. Promote less fatality in the fishery.		See discussion on page 72.

TABLE 7: SUMMARY OF THE IDENTIFICATION AND EVALUATION OF MANAGEMENT OPTIONS

D: Lake Trout

3. Issue/Problem - Demand for trophy size lake trout unknown but if the demand exists the number of opportunities is scarce and becoming more so. Refer to Page 47

IDENTIFICATION		DISCUSSION	
Optional Strategies	**Optional Tactics**	**Strategies**	**Tactics**
(1) Identify and manage specific lake trout lakes or areas for trophy lake trout.	(a) Use size limit restrictions (b) Limit the number of trophy and non-trophy fish harvested from a specific lake.	Some candidate lakes have already been identified, Eagle, Upper Manitou, Gullwing, Anishinabi, Stormy, Kawashegamuk. If demand is expressed for trophy opportunities existing uses or candidate lakes will need to be examined.	Both of these tactics require acceptance of less fatalistic fishing philosophy (catch and release). Of concern to the manager is the survival of released trout. However, it should be mentioned that grading to larger fish already occurs to some extent.

TABLE 7: SUMMARY OF THE IDENTIFICATION AND EVALUATION OF MANAGEMENT OPTIONS

D: Lake Trout

4. Issue/Problem - Lake trout lakes are fragile, generally unproductive and can't support both intense shoreline development and a good fishery. Currently there is cottage development on Ghost, Thunder and Cliff lakes. Refer to Page 47

IDENTIFICATION		DISCUSSION	
Optional Strategies	**Optional Tactics**	**Strategies**	**Tactics**
(i) Manage lake trout lakes primarily for lake trout and restrict or eliminate other development.	(a) Restrict or control cottage development. (b) Restrict road building and prevent logging or other resource extraction activities on shorelines.	This strategy is most readily effected when it comes to Crown Land disposition under the authority of MNR but on private lands it requires the support of other government agencies, such as the Ministry of Housing and Ministry of Environment.	There are a number of planning processes which are in place to assist in facilitating both tactics especially on Crown lands. This agency, however, also has the opportunity to review applications for consents and sub-division on patented land under the Planning Act.

TABLE 7: SUMMARY OF THE IDENTIFICATION AND EVALUATION OF MANAGEMENT OPTIONS

D: Lake Trout

5. Issue/Problem - Good spawning habitat on lake trout lakes often covers only a small portion of a lake and on occasion, in the past, has been degraded because of natural or man made-reasons. This is of continuing concern to fishery managers. Refer to Page 47

IDENTIFICATION		DISCUSSION	
Optional Strategies	**Optional Tactics**	**Strategies**	**Tactics**
(1) Spawning habitats should be identified, protected and where necessary rehabilitated and/or created.	(a) Identify and protect lake trout spawning areas through work programs and resource planning efforts such as Timber Management Planning, and the severance/ subdivision approval process. (b) Enhance and create spawning areas if necessary through addition of clean rock cobble to suitable sites through CFIP and/or MNR internal workplans.	No discussion necessary.	Identification of spawning habitats can be accomplished through the lake survey program for unsurveyed lakes and via special assessments in the context of identifying critical habitats in the Timber Management Planning process (Fish Habitat Guidelines).

TABLE 7: SUMMARY OF THE IDENTIFICATION AND EVALUATION OF MANAGEMENT OPTIONS

E: Muskellunge DLUG Target - None calculated
Interim Target - 12,614 kg. 6,307 angler days

1. Issue/Problem - Management must provide for increasing angling experiences while continuing to harvest trophy size fish and coping with catch and release mortality. There should be recognition of the differences of musky size potential in different waters. Refer to Page 48

IDENTIFICATION		DISCUSSION	
Optional Strategies	**Optional Tactics**	**Strategies**	**Tactics**
(1) Manage as a trophy fishery.	A provincial muskellunge committee has already weighed the alternative tactics and made the following recommendations to be implemented in 1987, for Dryden: Limits - (1) in one day (2) in possession Minimum Size - Eagle, Wabigoon, Dinorwic, Butler, Mile, Trap, Larson, Paulson Lakes, total length 102 cm (40 in.) All other waters - total length 86 cm (34 in.) Season - unchanged.	No other strategy is being considered in recognition of the unique biological and sporting characteritics of this species.	The proposed musky regulations will be in the Fishing Regulations Summary for 1987 as "Pending Regulations" with the intent that they will be passed in law in 1987.
	Promote the proper techniques of releasing catches.		This tactic is being done to some extent in the Summary of Fishing Regulations published by M.N.R., and by promotional material put out by Muskies Canada.
	Close the musky season on Wabigoon Lake until there is a recovery of the population.		Recent studies have shown a failure in successful recruitment in this lake for many years. The complete closure of the fishery for a prolonged period may allow recovery. No other remedial steps can be recommended to promote recovery until more is known about the cause of the failure. The failure pre-dates the known period of heavy fishing pressure The remnant adult population is very small, and ages show poor recruitment for at least 20 years.

TABLE 7: SUMMARY OF THE IDENTIFICATION AND EVALUATION OF MANAGEMENT OPTIONS

E: Muskellunge

IDENTIFICATION		DISCUSSION	
Optional Strategies	Optional Tactics	Strategies	Tactics
	Leave the musky season open on Wabigoon Lake but catch and release only.		This alternative admits the eventual loss of the fishery, but allows some angling opportunities during its demise. Mortality in this fish during catch and release is up to 30%.
	Determine other waters that should have the larger size limit and regulate accordingly.		More data gathering and research regarding populations is needed.
	Experiment with small lakes which now produce only small muskies (e.g. slot size, harvest part of population, test genetically) to see if size can be increased.		If growth can be promoted, a small new trophy fishery could result.

TABLE 7: SUMMARY OF THE IDENTIFICATION AND EVALUATION OF MANAGEMENT OPTIONS

E: Muskellunge DLUG Target - None calculated
Interim Target - 12,614 kg. 6,307 angler days

2. Issue/Problem - Identify and protect critical musky habitat. This is a relatively small but very valuable fishery, particularly to the tourist industry. It is also a fish which is sensitive to environmental and other pressures. Refer to Page 49

IDENTIFICATION		DISCUSSION	
Optional Strategies	**Optional Tactics**	**Strategies**	**Tactics**
(i) Promote research on musky habitat needs.	(a) Support the research priorities as outlined by the provincial committee on musky research. (b) Support the above research within the M.N.R. (c) Utilize special funding sources (e.g. O.R.R.R.G.P.) to support funding of the above research by other agencies.	More information is needed on musky habitat needs under varying conditions, although significant information has been researched locally in recent years. Appropriate habitat cannot be protected if it cannot be recognized.	(a) A provincial committee outlined the priorities for musky and pike research in 1982-83. The top priorities bear on habitat needs and recruitment. (b) M.N.R. has a Fisheries Research Section witha leading researcher in muskellunge. (c) This tactic has been used to fund local research on muskies, over the last few years, with very useful results.
(ii) Identify the important habitat areas.	Inventory the important habitat areas in musky waters throughout the District.	This is being done on a piecemeal basis as required. It would be much more effective to do it in a more concerted manner.	Habitat is only being inventoried and recorded in reaction to potential environmental threats.
(iii) Protect the important habitat areas.	Take appropriate action during I.R.M., forestry planning, work permit approval and subdivision/severence approvals.	The ultimate strategy following logically after the preceeding two.	This tactic is an ongoing procedure, simply needs more input from the first two strategies.

4.0 PUBLIC REVIEW

The public is invited to review and comment on this document and is encouraged to provide input throughout the entire planning process. A questionnaire is provided (see Appendix I) to assist in obtaining your comments and in tabulating input received. Questionnaires and comments will be received until November 24, 1986 at 5.00 p.m. Please note that questionnaires and comments received become public documents available for public review. Your comments will assist in the preparation of a Draft Fisheries Management Plan which will also be available for public review.

GLOSSARY

Allowable Yield

The yield by species as a result of partitioning the potential yield. The sum of the allowable yields by species will not necessarily add up to the potential yield.

Angler-day

While it is usually accepted that any amount of effort in a day constitutes one angler-day, for the purposes of converting angler hours to angler-days, 5.75 hours will be used.

Aquatic Habitat Inventory

A basic study of a lake to determine species present, water chemistry, depth, water volume and other characteristics. The information obtained can be used to determine the potential and allowable yields of the lake.

Areas of Concern

Areas requiring particular management prescription in order to maintain or improve resource values such as fish and wildlife habitat, forest genetic resources, scenic areas and other recreational and tourism values.

Baitfish

Any fish that are legally harvested by the commercial baitfish industry.

Boat Cache

One or more boats left or stored on Crown land for a period of time which in practice is usually for a season but may be year round.

Coldwater Lakes

Those streams having characteristics which would support Salmonids.

Commercial Fish

Any fish that are legally harvested by the commercial fishing industry.

Creel Survey

A survey of anglers to determine angler origin, species of fish caught, weights of fish and number of hours fished. Other information such as gear being used and information on the age of fish may also be collected.

Critical Fish Habitat

Any fish habitat required for the maintenance of a healthy fish population or otherwise identified as essential to the achievement of the Ministry's fishery program objectives.

Crownland Recreation Program

An initiative implemented in 1984 within the Northwestern Administrative Region. The intent of this initiative was to encourage non-Ontario based non-residents to use existing tourist facilities and thereby contribute to legal and provincial economics through use of Ontario's fishery resources and to generate revenue from non-resident use of Crown land. In addition, this program involves the designation of areas closed to non-resident camping to redistribute use from sensitive fisheries.

Goal

A general purpose to which the Ministry aspires.

Harvest

Fish taken and kept by resource users.

Interim Target

An assigned target subject to revision within the life of the plan when better data becomes available.

Lake Productivity

The rate of fish production in a waterbodies as determined largely by nutrient and energy inputs and exploitation levels.

Licenced Operator

Any tourist industry establishment under licence by Ministry of Tourism and Recreation.

Management

The judicious use of means to achieve ends. Management may have various levels of intensity. For example, if a high degree of technology is used, or if very careful tending is given, the management is high level.

Non-Resident

An angler whose principle residence is outside of Ontario.

North of (Northern) Ontario

Northwestern and Northeastern planning regions include the following Districts: Dryden, Fort Frances, Ignace, Kenora, Red Lake, Sioux Lookout, Atikokan, Geraldton, Nipigon, Terrace Bay, Thunder Bay, Blind River, Espanola, North Bay, Sault Ste. Marie, Sudbury, Temagami, Wawa, Chapleau, Cochrane, Gogama, Hearst, Kapuskasing, Kirkland Lake, Moosonee and Timmins.

Objective

A quantifiable and attainable end, which the Ministry's efforts are intended to accomplish.

Occasion

A measure of actual recreational use describing the number of times a recreation reserve or facility is used by individuals in a given time period. An occasion is not considered to exceed one day in duration.

Opportunity

A measure of recreation supply which is used to describe the number of times a resource or facility can be used (occasions of use) in a given time period. An opportunity is considered not to be greater than one day.

Outpost

Housekeeping accommodations usually in remote areas with limited access.

Over Harvesting

Harvests of fish by users which exceed the annual allowable yield.

Potential Yield

The amount of fish flesh that can be removed from the water on a sustained basis.

Planning Area

The area for which a planning process is carried out, and for which a resource management plan is prepared.

Policy

The decision concerning the objectives to be achieved and the means of achieving them. For resource management planning, we are mainly concerned with the objectives, targets, strategies and tactics.

Resident

An angler whose principle residence is in Ontario. A local resident would be one who can fish an area on a day use basis, i.e. travel to the area, fish, and return home on the same day.

South or (Southern) Ontario

The southern planning region includes the following Districts: Parry Sound, Bracebridge, Minden, Algonquin Park, Bancroft, Pembroke, Owen Sound, Wingham, Chatham, Simcoe, Aylmer, Huronia, Lindsay, Maple, Cambridge, Niagara, Tweed, Napanee, Carlton Place, Brockville and Cornwall.

Sportfish

Any fish that are legally caught by angling.

Strategy

Planned sections or measures to achieve a desired end.

Resource Management

The wise use of a particular resource, such as fish, to achieve a specific end.

Tactic

A method devised to achieve one or more strategies.

Target

A quantified end to be achieved or completed by a specific date.

Underproducing Waters

Waters from which the production is constrained because of stresses such as water quality, species composition, over harvest, undesirable species.

Warmwater Lakes

Those lakes other than coldwater lakes.

Warmwater Streams

Those streams other than coldwater streams.

APPENDIX 1

Fisheries Management Planning Questionnaire

Introduction

The primary purpose of the summary document and this open house is to convey to you the users of the resource, the problems and issues of resource management in the District and identify alternative approaches for dealing with them. At this stage of plan development the District is establishing targets for various uses of the resource which in effect is long term direction to the year 2000. Targets as presented are open and can be modified through the process of public input.

The draft plan will evolve from this stage of public consultation and it will present the preferred management approaches for dealing with problems and issues. It will also contain the targets. Following the preparation of the draft plan there will be another round of open houses to accompany the draft plan. You will have the opportunity to help us finalize the plan.

We encourage you to read the summary document carefully and review the information at the open house (if possible) before answering this questionnaire.

Please note that comments and suggestions are welcome on any aspect of the summary document or the open house.

In closing the District would like to thank you for your time and care in answering the attached questionnaire.

District Manager

QUESTIONNAIRE

		✓	Association
Name _____	Tourist Outfitter	☐	_____
Address _____	Bait Fisherman	☐	_____
_____	Commercial Fish	☐	_____
_____	Angler:		
	Resident Ontario	☐	_____
	Non-Resident Ont.	☐	_____
	None of the above- Please Specify	☐	_____

1. Do you believe the summary document provides an adequate overall assessment of the District fisheries resources and the problems and issues?

   Yes _____ No _____

   If no, please explain

   _____

   _____

   _____

2. The District has assembled what it considers are the major problems and issues associated with different uses of the resource. Do you think there are any others? Yes _____ No _____

   If yes, please explain

   Commercial Fishing _____

   _____

   _____

   _____

   _____

   Sport Fishing _____

   _____

Bait Fishing _____

Lake Trout _____

3. Do you believe the District has provided a good set of alternative strategies/tactics for dealing with the problems and issues?

Yes _____ No _____

If no, please explain which ones have been missed by referring to the appropriate section of document.

4. Please provide us with your ideas on fisheries management interim targets.

Lake Trout _____

_____

_____

Commercial Fishing _____

_____

_____

Sport Fishing _____

_____

_____

Bait Fishing _____

_____

_____

It would help if you made reference to documents.

5. In the northwestern region there are 13 wildlife management units but there are only 3 fisheries divisions. Do you think it is a good idea to have smaller fisheries management units?

Yes _____ No _____

If yes or no, please explain.

_____

_____

_____

_____

6. The harvest of walleye and lake trout above the allowable yield on a District wide basis or on specific lakes or groups is a serious threat to the long term future of the fishery. Are you as a user of the resource prepared under certain circumstances to accept lower harvests?

Yes _____ No _____

Please explain

_____

_____

_____

_____

7. Access control is a management tool used to give some degree of protection to fragile lake trout fisheries and tourist operations (which contribute to the local economy). Should access control be continued?

Yes _____ No _____

Should it apply to residents and non-residents?

Yes _____ No _____

or Non-residents not using tourist facilities?

Yes _____ No _____

8. Do you think that certain lakes, groups of lakes or areas of the district should be managed for <u>low</u> density high quality angling experiences (trophy opportunities)? Yes _____ No _____

If no, please explain, if yes, please specify which lakes and why.

_____

_____

_____

_____

9. In some lakes commercial fishermen are the only users of certain species for example, coarse fish (suckers) and whitefish. However some harvests of game fish is often unavoidable or necessary to make these fisheries economically viable. Given the above and the fact that there may be a need to cut back harvests for walleye, lake trout, etc. what role should the commercial fishery play in the overall harvest on these waters? Please provide discussion.

_____

_____

_____

_____

10. Is the present baitfish management system serving your needs?

Yes _____ No _____

Please explain. _____

_____

_____

11. Do you think there should be accelerated access via timber haul roads in areas presently inaccessible, little used with surplus fish resources?

Yes _____ No _____

Please explain. _____

_____

_____

Where those situations exist, are there other uses you would rather support?

Please explain. _____

_____

_____

12. Many of the questions were directed at specific users of the fisheries resource. Also they may not have covered or addressed your concerns. Please identify any additional comments.

_____

_____

_____

_____

_____

_____

_____

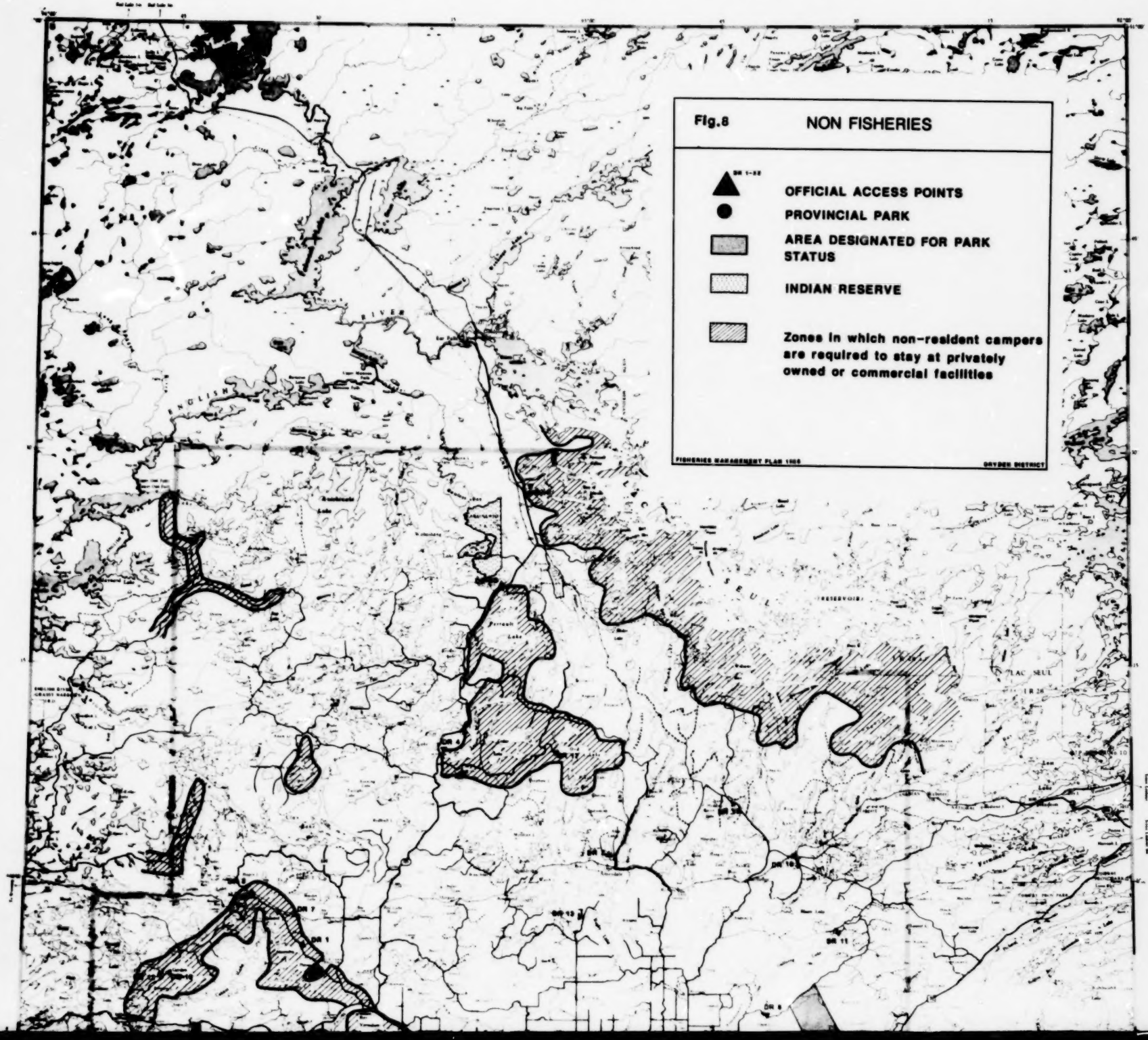
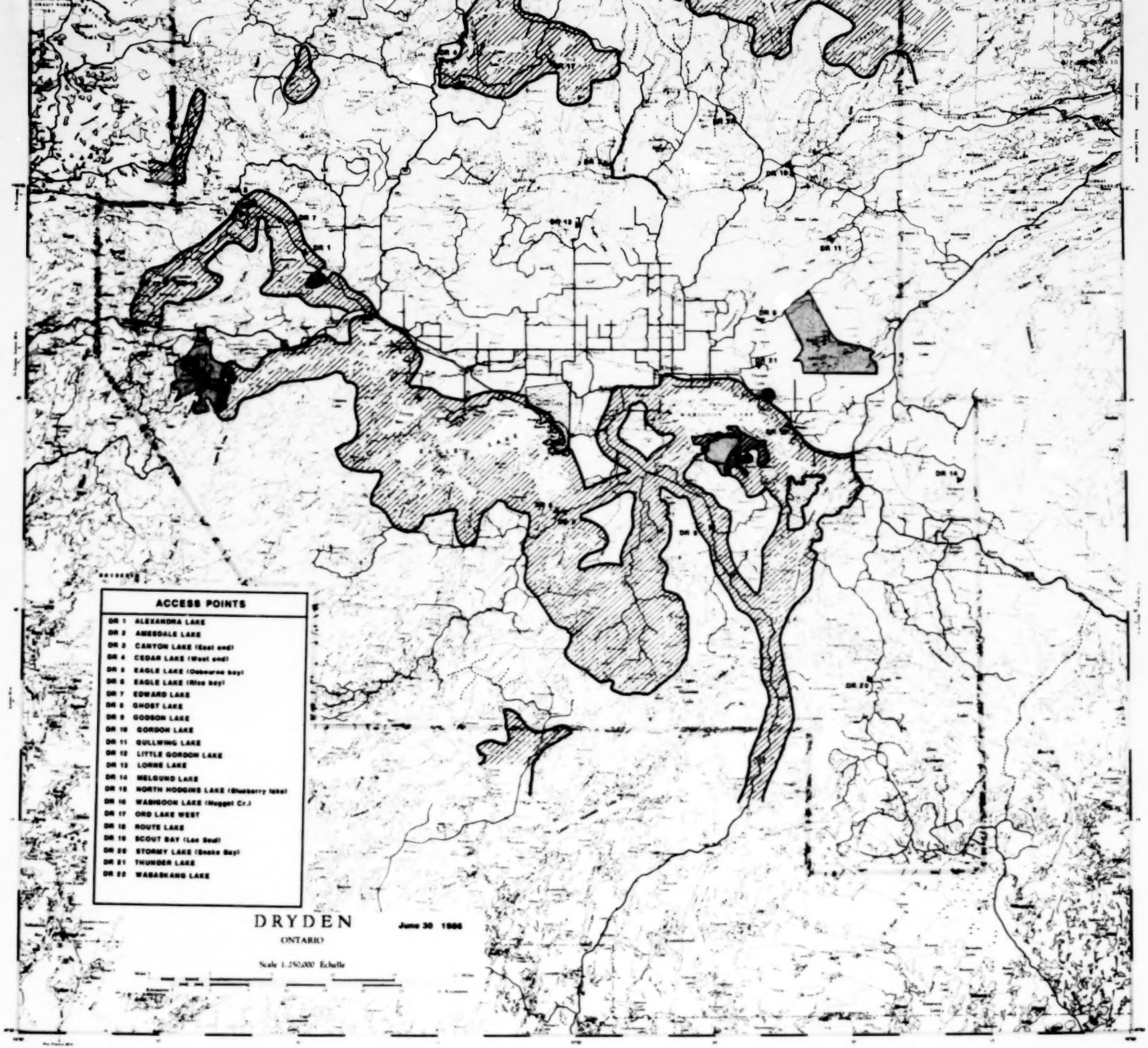


Fig.8
NON FISHERIES
OFFICIAL ACCESS POINTS
PROVINCIAL PARK
AREA DESIGNATED FOR PARK STATUS
INDIAN RESERVE
Zones in which non-resident campers are required to stay at privately owned or commercial facilities
FISHERIES MANAGEMENT PLAN 1985
DRYDEN DISTRICT


ACCESS POINTS
DR 1 ALEXANDRA LAKE
DR 2 AMESDALE LAKE
DR 3 CANYON LAKE (East end)
DR 4 CEDAR LAKE (West end)
DR 5 EAGLE LAKE (Osbourne bay)
DR 6 EAGLE LAKE (Rice bay)
DR 7 EDWARD LAKE
DR 8 GHOST LAKE
DR 9 GODSON LAKE
DR 10 GORDON LAKE
DR 11 GULLWING LAKE
DR 12 LITTLE GORDON LAKE
DR 13 LORNE LAKE
DR 14 MELGUND LAKE
DR 15 NORTH HODGINS LAKE (Blueberry lake)
DR 16 WABIGOON LAKE (Nugget Cr.)
DR 17 ORD LAKE WEST
DR 18 ROUTE LAKE
DR 19 SCOUT BAY (Lac Seul)
DR 20 STORMY LAKE (Snake Bay)
DR 21 THUNDER LAKE
DR 22 WABASKANG LAKE
DRYDEN
ONTARIO
June 30 1986
Scale 1:250,000 Echelle